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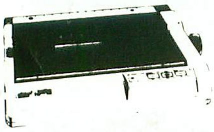
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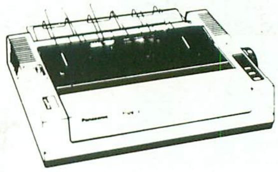


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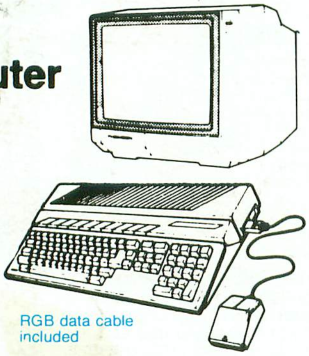


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FIRE SALE!

Recently, one of the adjoining stores to our offices/warehouse had a fire which forced us to re-locate. A large quantity of our software/hardware/documentation suffered heat/smoke/water damage. We salvaged as much as possible and are offering these items to you at ridiculously LOW PRICES. All items are fully warrantied. NO COD's - Cash, Bank Checks, Money Orders, VISA or MASTER CARD. ALL SALES FINAL. Quantities are limited.

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First Look Inside XE Game System. Page 42



BSRk. Page 21

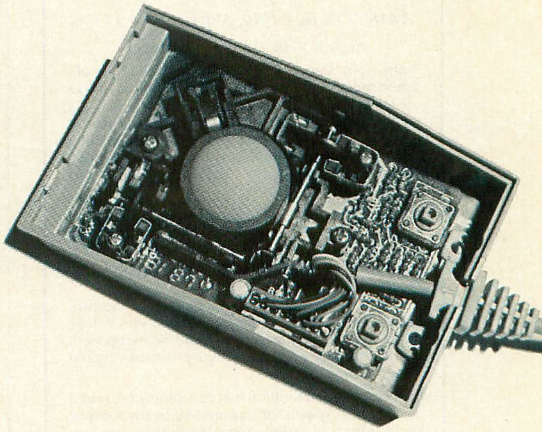
FEATURES

AUGUST 1988, VOL. 7, NO. 4

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ST RESOURCE



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Illustration by Adrian Day

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Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

XL/XE-ONLY CARTRIDGES

The June 1988 **Antic** review of *Atari's 12 New Entertainment Cartridges* erred in claiming that all new cartridges work on any Atari 8-bit computer. Some current releases require XL/XE models—or a previous Atari upgraded to at least 64K memory.

So far, the new generation of Atari game cartridges that need a minimum of 64K memory are: Flight Simulator II, Lode Runner, Hardball, One on One, Fight Night, David's Midnight Magic and the upcoming Food Fight.

WORDPERFECT HANGS IN

Despite any recent rumors, WordPerfect Corp. has not announced that we are withdrawing from the Atari market and have no current plans to do so. We *do* have some concerns about piracy, but they are not limited exclusively to the Atari market.

We have long held the philosophy that copy protection is an unacceptable solution to piracy problems. We believe that most people are honest and we feel that it is inappropriate to penalize them for the actions of the smaller group of dishonest people. I too have felt the frustration of having a copy-protected disk become "unreadable," not to mention the inconvenience to hard disk owners. The decision to make this a corporate policy was made several years ago when we were contemplating what to do about the IBM PC market.

Dan Lunt
Vice President, Marketing
WordPerfect Corporation

XMM801 V-GRAPH FIX

I recently subscribed to your magazine and just received your *Best of Antic* disk as a bonus—and I found a program I could use right away. *V-Graph* was just what I needed to complete a report.

The program isn't compatible with the Atari XMM801 printer, but the fix is easy. Change line 690 to:

```
690 FOR U=0 TO 39:? #3;
CHR$(27);"V";CHR$(128);CHR$(1);
```

David Schoch
Scotia, NY

WRITE-IN WORKED

Thanks to **Antic's** "Write a letter to Springboard" campaign, I now own the Newsroom program and have made my first newsletter with it. Newsroom works fine with my Atari 130XE and the documentation is great. The program is very easy to use.

I certainly hope that Atari XL/XE owners will support this fine product. The entire package with the three Clip Art disks *costs* only $74.99 including shipping. It's well worth the money and will work with almost any dot-matrix printer.

Thanks to **Antic**, another fine software product is now available for the Atari 8-bit computer. Keep up the good work.

Frank Carey
Troy, MI

64K NEEDED

In the May 1988 **Antic**, the review of Guild of Thieves says that it requires 48K and a disk drive. This isn't true—it requires not only *64K*, but an *Atari 1050* disk drive or equivalent. Many titles from Mindscape and Datasoft also require 64K memory.

David Patnychuk
Greencastle, PA

AUTOTYPO UPGRADE

When typing in **Antic** programs, I use AutoTYPO (**Antic**, November 1986) so I don't have to look back and forth at the monitor to see if the TYPO codes match. It significantly reduces typing time. However, there is one minor flaw.

If, after entering the TYPO code, you type in a program line but forget the line number, no warning occurs, and you might finish typing in the program without ever realizing your mistake. This can be corrected if you add the following line:

```
32115 IF LINE$(1,1)<CHR$(49)
OR LINE$(1,1)>CHR$(57) THEN
SOUND 0,95,10,8:FOR X=1 TO
75:NEXT X:SOUND 0,0,0,0:B=0
```

The TYPO code for that line is WV. Now, when you forget the line number, a pleasant tone alerts you to re-enter the line properly.

Gary Coppola
Budd Lake, NJ

PADDLE PRAISE

Recently I became acquainted with Baudville's Blazing Paddles (reviewed in **Antic**, January 1987) and Shapes and Fonts. They're truly amazing. With the help of Baudville employee Faye Vanden Berge, I've discovered so many things Blazing Paddles can do. I can't begin to give Blazing Paddles all the praise it deserves.

Faye Hanners
Linden, MI

RIBBON REVIVAL

Computer users sometimes find that their printers are no longer supported or the ribbons are either hard to find or too expensive to replace. Here's a quick and easy fix:

You can find inexpensive ink rollers at stores that sell calculators and typewriters. Purchase one that's the approximate width of your printer ribbon. Apply a little glue to the side of the ribbon cartridge where the ribbon passes through *after* passing the print head. Position the ink roller so that it just touches the ribbon as it returns to the cartridge. As the printer works, the ribbon runs over the ink roller and enters the cartridge where the ink soaks into it. By the time the ribbon leaves the other end of the cartridge, it has a fresh new covering of ink that continues to renew itself as long as the ink roller remains inked. On overused, dried-out ribbons, this works better if you run the printer's self-test for one or two pages.

William Culver
Shickshinny, PA

RAM ON

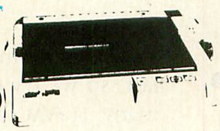
When I bought AtariWriter Plus over a year ago, I was dismayed that I couldn't run it from a RAMdisk because the program always wanted the Mail Merge and Proofreader programs on drive 1. However, I booted MYDOS, and though my disk was already configured for a D8: RAMdisk, I set the RAMdisk to drive 1 with the Omniview 256K "Install 1" RAMdisk handler.

To my surprise, my physical D1: and D2: were kicked up to D2: and D3:—I stilll don't know if this was done by Omniview or MYDOS. Then I copied all the AtariWriter Plus files (except DOS.SYS and DUP.SYS) onto the RAMdisk and placed the AtariWriter Plus disk into my physical drive 1—now D2:. Then I ran AUTORUN.SYS from the RAMdisk. The program booted at lightning speed and made a quick check of the physical drive to verify the copy protection. Then it was ready to use.

Even more suprisingly, I found that while under the control of AtariWriter Plus, the two physical drives were treated as D1: and D2:. but when I selected Proofreader or Mail Merge, they loaded instantly from the RAMdisk, and returned

continued on page 8

star micronics



NX-1000

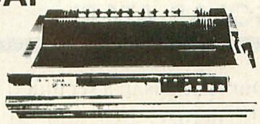
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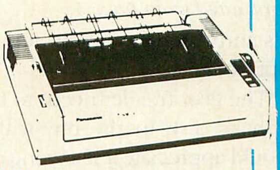


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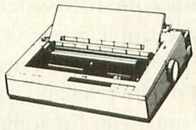
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Sub Battle Simulator	$22.95
World Games	$22.95
Wrestling	$11.95
Winter Games	$11.95

Firebird:

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Starglider	$25.95
Golden Path	$11.95
Guild of Thieves	$25.95

ATARI ST

Timeworks:

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Partner ST	$27.95
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Unison World:

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Phantasie	$22.95
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Wargame Con. Set	$19.95
Phantasie III	$22.95

Sublogic:

Flight Simulator II	$30.95
Scenery Disk	$14.95

Here are opportunities to enjoy below cost savings on items currently not in production due to newer replacement models. Call for updated product list.

Monitors

Thomson

230 Amber TTL/12"	$79.95
4120 CGA	$219.95
4160 CGA	$254.95
4460 EGA	$349.95
GB 200 Super Card	$184.95
4570	$399.95

NEC

Multisync II	$589.95

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BCM 12" Green TTL	$64.95
BCM 12" Amber TTL	$69.95

Magnavox

BM7652	$79.95
BM7622	$79.95
7BM-613	$75.00
7BM-623	$79.95
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CM8505	$199.95
9CM-053	$339.95
CM8762	$239.95
8CM-515	$249.95
CM9043	$329.95
8CM-873	$499.95

Modems

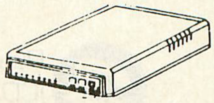
Avatex

1200e	$69.95
1200i PC Card	$69.95
1200hc Modem	$89.95
2400	$179.95
2400i PC Card	$169.95

Hayes

Smartmodem 300	$149.95
Smartmodem 1200	$285.95
Smartmodem 2400	$425.95

Avatex™ 2400



$159.95

with cable purchase

continued from page 5

instantly when I selected the return option.

The Proofreader needs to have the dictionary disk in the physical drive, so I would appreciate it if anyone could tell me how to use MYDOS (or any other DOS) to partition my Newell 256K XL into two RAMdisks so I can run the dictionary disk from RAM too.

John Kolak
Fort Polk, LA

BIO A+

I used *MegAnimator* (**Antic**, February 1988), *Mr. Smoothy* and *Big Letters!* (March 1988) and *UltraFont* (August 1986) to create a project for my biology class. Using the VCR hookup instructions in *Big Letters!*, I brought in a videotaped show and got an A+, for which I think **Antic** deserves some credit.

Tim Kirby
Pittsburgh, PA

SOLAR ATARI

Our home is in a secluded National Wildlife Refuge area and we electrify it—including our 8-bit Atari system—with solar panels on a freon tracker. Two cannisters hold freon that travels from one to the other through a small tube. The sun's heat converts the freon from liquid to gas which rises to the higher cannister. Thus the tracker follows the sun across the sky, giving us the maximum power from our panels.

Our Heart Interface 1200X Inverter converts our 12 VDC to 110 VAC. This allows us to use our computer system as well as other 110VAC appliances. As long as the wattage of the appliance does not exceed the limit of the inverter and it is not something that must run for long periods of time, like a freezer, you can use anything you'd usually use in the home.

The big problem of this system is that we have to be very careful about what we use after sunset. Our battery bank holds about 840 amp hours of power. The less you drain them, the longer the batteries last, so we try to be careful and not use many 110VAC things in the evening, including our 130XE, Indus disk drive and Panasonic printer.

The meter box on one of our doors is our control center for all our power. It controls the changing of our batteries so they don't get overcharged (which can ruin them real fast!). It also serves as our fuse box, just like the one in an average house. Every line that runs to different parts of our house is fused as it goes to the box. The batteries are connected to the box also as our "power line." We can shut the whole system down or just shut off the house power, or the solar panels, or whatever.

Ron and Mary Kearns
Arizona

WEFAX OVERSEAS

I live in West Germany. Regarding *Weather Maps from Space* (**Antic**, September 1986), is it possible for me to receive WEFAX signals overseas?

Brandon Zanone
APO NY

Yes! Here are some books to help you find the signals. The New Weather Satellite Handbook *by Dr. Ralph Taggart is the definitive text on WEFAX. It's available from the author for $12.50 (add $2 for orders outside the U.S. Write: Dr. Ralph Taggart, 602 S. Jefferson, Mason, MI 48854.* The Shortwave Facsimile Frequency Guide *is available for $14.95 from: University Electronics, Inc., 4555 Groves Road, Suite 13, Columbus, OH 43232.*

The Weather Fax Guide *is a free catalog from: Atlantic Surplus Sales, 3730 Nautilus Avenue, Brooklyn, NY 11224. But a free leaflet called the* Weather Satellite Fact Sheet *is a "must-have": Radio Nederlands, P.O. Box 222, Hilversum, The Netherlands.*—ANTIC ED

PRAISE I.C.

I recently installed a 128K upgrade from Innovative Concepts for my 65XE. I read about it in an ad in **Antic**, December 1987.

continued on page 10

Super Disk Bonus

Program By RAYMOND CITAK

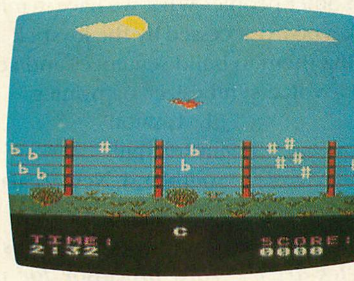
Keyed-Up!

Musical ear training. . .plus laughs!

Antic's August 1988 Super Disk Bonus is a music education program disguised as a goofy game. Keyed-Up! gives you practice at *hearing* the difference between scales in major and minor keys. As you try to keep a bird from getting zapped on an electrified wire fence, you're actually learning the relationship between sounds and key signatures—those sharps or flats at the start of a musical composition.

Your joystick controls a bird flying above a roadside fence that consists of five wire strands representing the five lines of the treble staff. Between each fencepost is a key signature. There are 15 scrolling fence sections—seven with one to seven sharps, seven with one to seven flats, and one blank section with no sharps or flats.

As the bird starts flying, a letter indicating the first note of the scale appears at the lower center of the screen. Using the joystick, land the bird on the section of fence that shows the correct key signature for the scale and note indicated.



If you land correctly, you gain points and a new scale will be played. If you land on the wrong section of fence, watch the birdie—the fence is electrified! Play continues for three minutes.

You must listen carefully to the scale being played and try to tell the difference between the major and natural minor scales. There are three levels of difficulty and an online help screen that can be accessed anytime. Beginners should first play the major option, then the minor, to accustom their ears to the difference. The third note of the scale is the most important one to listen for.

The Keyed-Up! program consists of more than 100 sectors of assembly language code, which would be a mind-numbing challenge to type correctly. Author Raymond Citak is a piano instructor at the University of Wyoming in Laramie. He is a longtime Atari programmer making his first appearance in Antic.

Your August 1988 Antic Disk—featuring Keyed-Up! as well as every type-in program from this issue plus other special bonuses—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk is only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a $5.95 check (plus $2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

Programmers: Antic wants to see your most ambitious programs, even those too large or complex for printing as a type-in listing. High-quality programs in any language that has a runtime version are now eligible for consideration as a Super Disk Bonus. ■

continued from page 8

I'm totally satisfied with the upgrade and IC's customer service. For the nominal price of $29.95 I received all the parts I needed as well as easy-to-follow instructions. My thanks to a company which backs up Atari products with quality upgrades.

Alex Tatistcheff
APO NY

JUNGLE RULES!

My personal net worth at forced retirement from *Entrepreneur Jungle* (**Antic**, March 1988) was $110,322,048,793. I made my first $1 billion at year 32, my first $10 billion at year 34 and my first $50 billion at year 39. Only twice was I convicted of racketeering—all other times, I was acquitted. Maybe I'll try the *real* stock exchange. Imagine the Wall Street Journal headline, "Kid Stock Whiz Sweeps Market—Credits it all to **Antic** Magazine!"

Fred Beondo

STICK WRITER

We have two people here who are almost completely paralyzed after accidents, with minimal head and arm movement and no speech. Do you know of any Atari products that will help them communicate with other people? What we have in mind is a keyboard accessed by the joystick, allowing them to build sentences and activate a voice synthesizer or printer.

J.E. Lawton
Invercargill
Southland, New Zealand

Stick Writer *(**Antic**, March 1986) is a joystick-driven word processor for the handicapped. It works with* S.A.M. Handler *(**Antic**, February 1985) to activate the S.A.M. software speech synthesizer which was widely sold several years ago. In order to save time in this emergency situation, we have sent a disk with the two **Antic** programs to you in New Zealand.*—ANTIC ED

QUICK B

Is there a way to use Compuserve "Quick B" protocol when downloading from ANTIC ONLINE?

Bob Loconto
CompuServe ID
73147,613

Not yet, we're still working on it.—ANTIC ED

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

New Products notices are compiled by the ***Antic*** *staff from information provided by the products' manufacturers. Antic welcomes such submissions, but assumes no responsibility for the accuracy of these notices or the performance of the products listed.*

N.E.R.D.S. BIOLOGY DISKS

(printing software)
N.E.R.D.S. Software
18 Wendy Drive
Farmingville, NY 11738
Requires Print Shop
$9.95 ($16 for both), 48K disk
(516) 698-0445

The first **N.E.R.D.S. Biology Disk** contains about 115 graphics relating to human and animal circulatory, digestive, endocrine, respiration and reproductive systems. The second disk has another 115 icons dealing with microbiology, insects, basic biochemistry and plants. These graphics can be printed out in different sizes and positions. Broderbund's Print Shop software is required.

AMYGDALA

(newsletter)
Amygdala
P.O. Box 219
San Cristobal, NM 87564
$15 for 10 issues ($25 overseas)

Amygdala is a newsletter devoted exclusively to fractals and the Mandelbrot set. Each issue contains black and white illustrations of fractals, an extensive bibliography and reviews of fractal-generating computer programs. The optional $15 slide supplement ($25 overseas) consists of finely detailed color slides of fractals.

GATO

(entertainment software)
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94088-3427
(408) 745-2000
$22.95, 64K cartridge

You're the captain on a World War II GATO-class submarine, patrolling the South Pacific theatre. You've undertaken classified search, destroy and rescue missions in Atari's new cartridge conversion of **GATO** by Spectrum Holobyte. Positions, courses and maneuvers of your ship and others are calculated in real-time simulation. GATO also features 3-D perspective.

CROSS TOWN CRAZY 8

XLEnt Software
P.O. Box 5228
Springfield, VA 22150
(703) 569-8881
$19.95, 48K disk

Cross Town Crazy 8 is the classic card game with a new twist. You can play against as many as three computer opponents—*or* challenge your friends on line via modems. Cross Town Crazy 8 was written for both 8-bit and ST by longtime **Antic** contributor Patrick Dell'Era, author of *Diskio Plus* (December 1985).

NO THRILLS

(disk drive interface)
Irata Verlag USA
1272B Potter Drive
Colorado Springs, CO 80909
(303) 596-0135
$130

With a **No Thrills Interface**, you can hook up either an IBM-compatible or ST disk drive to your Atari 8-bit, gaining vastly increased capacity and speed at less expense. The No Thrills Interface is roughly the size of a printer interface.

ASTRONAUTS

(entertainment software)
Bensley Consulting
P.O. Box 301
217 West Walnut
Westfield, IL 62474
(217) 967-5465
$19.95, 48K disk

Astronauts is a kind of space travel trivia quiz compiled with Turbo BASIC. In this unprotected program, you can choose questions on the Mercury, Gemini, Apollo and Shuttle missions. For example: You're given an astronaut's name—which missions was he involved in?

HYPERDRIVE

(disk drive)
Wuztek
4521 Campus Drive, Suite 400
Irvine, CA 92715
(714) 733-0189
$229, Atari XL/XE

HyperDrive stores 720K on a 3.5-inch disk and includes a printer interface with an 8K RAM buffer. Store more than eight times as much information on one XL/XE disk—running MYDOS, SpartaDOS or any DOS that can recognize and use the extra storage space. (Unfortunately, this doesn't include Atari DOS 2.0 and 2.5.) With the optional $100 Hyperspeed cartridge, transfer speed increases to 150,000 baud.

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If you're interested send in your one-time $25 registration fee along with: type of BBS hardware and software; number of weekly callers; number of BBS phone lines; BBS name, phone number and address; and voice number of the sysop.

Return the favor. When you call a manufacturer or supplier about a product you've seen advertised or otherwise mentioned in ANTIC, please tell them so. This will help us to continue to bring you the latest information about products that will make your Atari computer an even more valuable investment in the future.
—ANTIC ED

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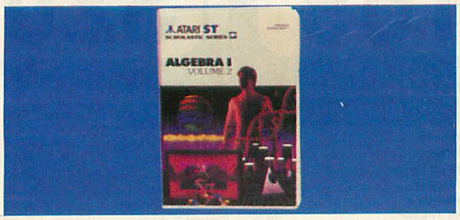
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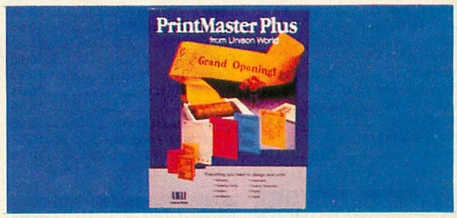


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By KEN ARROMDEE

Black Box

Rays that probe the unknown!

Probe the mysterious black box with your joystick rays and deduce the location of hidden particles by cleverly analyzing graphic clues. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

Black Box is an computer upgrade of an enjoyable board game that doesn't seem to be still manufactured. You're exploring a "black box" containing up to eight "particles" in unknown locations randomly selected by the computer. The object is to discover those locations by probing the box as few times as possible.

Type in Listing 1, BLACKBOX.BAS, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing the special characters in line 1090, don't type them in. Instead, type Listing 2, check it with TYPO II and SAVE a copy to disk. When RUN, Listing 2 creates this hard-to-type line and stores it in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:BLACKBOX.BAS" and then ENTER "D:LINES.LST". Cassette users should CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:". Remember to SAVE the completed program before you RUN it.

PROBE & GUESS

You probe the box by sending a "ray" into it from one of the sides. The ray would normally travel in a straight line. The hidden particles interfere with the ray, changing (or halting) its path through the box.

Use these effects as clues to determine the position of each particle. Here are the possible effects:

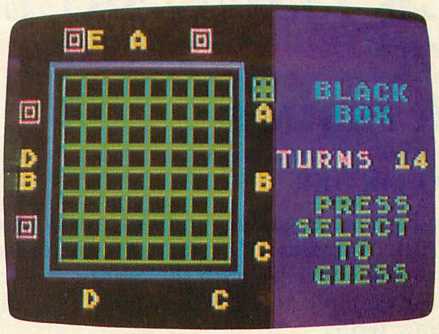
1. If a particle is directly in front of a ray, the ray is absorbed. This is represented by a red square.

2. If one particle is on the left of the area directly in front of a ray and *another* is on the right, the ray is reflected back along its path to the starting point. This is represented by a purple circle.

3. If a *single* particle is on the left or right of the area directly in front of a ray, the ray will bounce off its corner. This means that two markers (letters) are placed where the ray *enters* and *exits* the box.

4: A ray that is neither reflected nor absorbed has two markers placed and counts as two turns.

You start the game by probing the box with rays sent from outside the box (The black box is actually displayed



here as a grid.) Move the cursor, a green square, with your joystick and send a ray through the box by pressing the joystick button.

Press [SELECT] when you're ready to guess where the particles are. Your cursor will turn yellow. Move the cursor over the box grid and press the joystick button to mark (or erase) your guesses.

After you think you know where all the particles are hidden, press the [SPACEBAR] to see their actual locations. Particles are represented as red boxes. Then you can start a new game by pressing the joystick button. ■

Ken Arromdee is an electrical engineer from Ventor, New Jersey.

Listing on page 31

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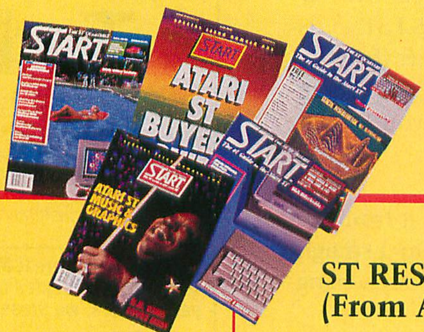
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By GREGG PEARLMAN

Pre-Schoolers' New Software Guide

Rating 37 Atari 8-bit educational programs

If you're searching for just the right software for children aged 3 to 6, you might want to look into the **1988 Survey of Early Childhood Software.**

Hundreds of educational programs, including 37 for the 8-bit Atari, are rated for ease of use, educational value, instructional design, computer compatibility, skills required and amount of adult supervision needed.

For the 8-bit Atari, the 10 top-rated programs are:

SCORE	TITLE	PUBLISHER
78	First Shapes	First Byte
76	Kid's Stuff	Stone & Associates
75	Make a Match	Springboard
74	First Letters	First Byte
73	Music Maestro	Springboard
73	Stickybear Opposites	Weekly Reader
70	Stickybear Shapes	Weekly Reader
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68	Grandma's House	Spinnaker

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BSRk

Type-in home control software

BSRk delivers the main features of the commercial PowerManager home controller software reviewed in this issue. Use your Atari to program a series of timed sequences on the X-10 Powerhouse Computer Interface for BSR on/off units. The BASIC program works with all Atari 8-bit computers with at least 48K. It requires an Atari 850 or P:R: Connection interface, a disk drive, the model CP290 Powerhouse interface and X-10 BSR modules. An ST version of BSRk is also published in this issue. It will work in high or medium resolution.

By Walter Lazear



Mary Rhomberg Peloquin

X-10 wall-plug module and Powerhouse RS-232 serial controller let your Atari (8-bit or ST) automatically brew your first morning coffee—or any other on/off electrical operation.

Type-In Software

BSR modules such as the popular X-10 products plug into electrical outlets and use the household wiring to transmit programmed signals for switching any standard electrical equipment on and off. Full details about the X-10 system are explained in this issue's review of Terrific Corp.'s PowerManager software.

Walt Lazear describes himself as a Chesapeake Bay sailor who finances his cruising by working as a systems analyst specializing in networks and communication protocols. He has enjoyed his Atari 800 for over five years.

BSRk (BSR kontroller) is essentially a simple, menu-driven disk database manager that sends its data to the X-10 PowerHouse, which has its own memory and microprocessor. BSRk does much of the same job as PowerManager—but on a smaller scale and with fewer features. The key differences are:

1. BSRk requires an interface with a serial port, such as the Atari 850 or ICD's P:R: Connection. PowerManager plugs directly into the Atari's joystick port 2 with a special cable that comes with the package.

2. BSRk can control 16 devices and 24 on-off events. PowerManager handles 256 devices and 128 on-off events.

3. PowerManager can load previously saved libraries of scheduled activities. Only a single library can be saved as part of the BSRk program.

GETTING STARTED

You need to use the IBM PC version of the X-10 Powerhouse CP290 interface, which comes with a generic RS-232 cable. This cable connects to your Atari 850 via your own modem cable (an RS-232C cable with a female DB25 connector on one end and a male DB13 connector on the other).

Plug one end of this cable into the R1: port on the 850. Plug the other end into the cable that came with your X-10. Finally, plug the other end of your X-10 cable into the back of your X-10, and plug your X-10 into a wall socket.

You must keep all your BSRk files together on a separate disk that has been formatted with DOS 2 or DOS 2.5. Type in Listing 1, BSRK.BAS, check it with TYPO II and SAVE a copy to your BSRk disk. This is the main program.

Next, type in Listing 2, BSRHAND.BAS, check it with TYPO II and SAVE a copy to your BSRk disk. When RUN, Listing 2 creates a file called BSRHAND.OBJ, a machine language program which first sets-up the RS-232 serial handler program, then RUNs BSRK.BAS. Antic Disk Subscribers will find a copy of BSRHAND.OBJ on the monthly disk.

Finally, copy BSRHAND.OBJ to your BSRk disk and rename it AUTORUN.SYS. At this point you should have just four files on your BSRk disk: DOS.SYS, DUP.SYS, AUTORUN.SYS and BSRK.BAS.

Figure 1

BSRK DATABASE FIELDS

FIELD	LEGAL VALUES
Status	I=inactive, A=active.
Device ID	BSR module number 1-8.
Location	Any text.
Days	Selected from a menu.
Time On	24-hour time.
Time Off	24-hour time.
Level	0=brightest, 8=dimmest.
Mode	N=normal (exact time), S=security (within an hour).

ST BSRk

GEM home control in GFA BASIC

By Charles Jackson, Antic Technical Editor

The ST Version, BSRK.BAS, is written in GFA BASIC, and works the same way as its 8-bit cousin. Antic Disk owners will find BSRK.PRG, a runtime version of BSRK, on this month's disk. This version can be used even if you don't own GFA BASIC.

When RUN, BSRK.PRG clears your desktop, then displays a menu bar with three choices—Desk, Records and Files. Use the Desk menu to access your desk accessories.

The Options menu contains choices to initialize your BSRk database, set the interface's time, load the database into the interface, and to quit the program.

Use the Records menu to update your BSRk database, show all of the records in the database, and to show only the active records.

Start by pulling down the Options menu and clicking on "Initialize". You need to initialize the database file only once. Be Careful! This function erases any previous database from your disk and creates a blank, new one.

Next, pull down the Records menu, click on "Update" and specify record 1. Select each field and type the proper data, as shown in *Figure 1*. When you have entered the entire record, choose menu item 9 to return to the main screen.

For a quick summary of records, pull down the Records menu. From here you can click on Show Active to conveniently display only the active records, or Show All to display all of the records in the database.

Now, pull down the Options menu and click on Load BSR Interface to send your records to the X-10 Powerhouse's memory.

Finally, click on Set Time to set the current date and time. Now you may turn off your ST and let your X-10 Powerhouse control your house.

GOING BSRk

Start by choosing item 1, Init Database, from the BSRk menu. You need to initialize a disk database and index

continued on page 23

NumberPrint

Dollars and cents where you want them

NumberPrint is a clever, handy subroutine that correctly lines up numbers for neat printouts. It automatically sets right justification for proper column alignment, floating dollar signs and commas, and filler characters for check printing. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

By MARC ESCOLA

Want to spruce up your program's reports? How about printing numbers using floating dollar signs, commas, and fill characters? No more checking numbers to see if you need to precede them with blanks, so that your amounts print out correctly in columns. No more converting numbers into string format and struggling to right-justify them so that the cents don't end up where dollars should be.

NumberPrint knows where to place numbers for correct printouts. All you have to do is create an edit pattern and call the NumberPrint subroutine from your main program.

GETTING STARTED

Type in Listing 1, NUMPRINT.BAS, check it with TYPO II and SAVE a copy before you RUN it. (Antic Disk owners will also find a bonus file this month, NUMPRINT.M65, the MAC/65 assembly language source code for NumberPrint.)

If you have trouble typing the special characters in lines 1010-1040, don't type them in. Instead, type in Listing 2, check it with TYPO II and SAVE a copy. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:NUM-PRINT.BAS" and then ENTER "D:LINES.LST." Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:". Remember to SAVE the completed program before you RUN it.

The table below shows how NumberPrint translates the proper edit pattern into the printed result you want.

Number	Edit Pattern	Result
10	"XX,XXX.XX"	" 10.00"
22.5	"X$,XXX.XX"	" $22.50"
5	"**,XXX.XX"	"*****5.00"

You must first place the subroutine's data into a string. Now you will need a string where your edited number will be placed. Fill this string with the desired pattern. You will also need a temporary variable for the subroutine to use. Place the number you wish to edit into the temporary variable and then call the USR function. Your number is now in the string and ready to print.

Setting up your own edit pattern is easy. Use the X character for each spot where you wish a digit to be placed. Use as many Xs as the largest number you will use. If your number will contain fractions (decimal places) you can use the optional period [.] character. Place the period at the left of the digits that will represent it. The subroutine will fill these positions with zeros if your number has no fractions.

Fractions will be dropped if no period is in the string. Note that no rounding-off is performed. Commas or any other characters (except for optional and inverse) can be placed anywhere in the string to separate digits.

NumberPrint has two other optional characters which you can include—the dollar sign [$] and the asterisk [*]. These characters, if placed in the second position in the string, will automatically float up to the most significant digit. This is very useful if your program is printing checks.

Another handy way to use NumberPrint is for placing filler characters. The default character is a blank. Place the desired character in the first position of the string and if the number is smaller than the digits in the string, the spaces will be replaced with this character. Note that use of either the float position or the fill position takes the place of one of your X's. This means that if your number is too large, it will cut off these options. If you always wish to have these options in effect you should have enough Xs to fill in the string completely. ■

Marc Escola of Portland, Oregon is senior application programmer for a major retail company. A member of the Portland Atari Club, he has been programming Atari 8-bit computers since 1983. This is his first publication in **Antic**.

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BSRk
continued from page 21

files only once. This Init function erases any previous database from your disk and creates blank, new ones.

Next, choose item 3 to Update Records. Specify record 1, select each field and enter your data choices, as explained in *Figure 1*. Exit that Update, then *again* select Update Records from the main menu, but this time specify record 2. Repeat for as many BSR modules and on/off times as needed.

At any time you can use choice 4, Show Active, to conveniently display all of the active records, or choice 5 to Show All of the records in the database.

Next, choose item 6, Load BSR Interface, to actually send your records to the X-10 Powerhouse's memory.

Finally, set the current date and time with choice 2. Now you can unplug your 850 or P:R: Connection from the Powerhouse—which will remember the events you sent it and activate them when appropriate. Now, it's time to sit back and enjoy your house gone BSRk.

PROGRAM TAKE-APART

BSRk is very modular and subroutine-oriented. This aids in debugging the initial code and extending the functionality later.

50 Initializes the 810 interface to 600 baud and even parity.

100 Writes characters from MSG$ to the X-10 with inter-character delay.

150 Reads a character from the X-10.

200 Reads sync and status characters.

250 Computes the checksum across the START to FINISH portion of MSG$.

300 Display column headers for record listings.

350 Displays a record in columns.

400 Set up constants, arrays, and labels.

450 Overwrites a record on disk.

500 Reads a record from disk.

550 Reads index file from disk and fills CHAR( ) and SECT( ) arrays.

600 Breaks 24-hour time into hours and minutes.

650 Sends the default housecode (A) to the X-10 to clear its memory.

700 Main loop. Display menu, get user choice, call appropriate routine.

1000 Initializes disk database by writing blank records and initializing the index.

2000 Prompts for hours and minutes and sends that time to the X-10.

3000 Retrieves record from disk, displays it, prompts for individual field changes, rewrites record to disk.

4000 Displays records that will be downloaded to the X-10 (status = active).

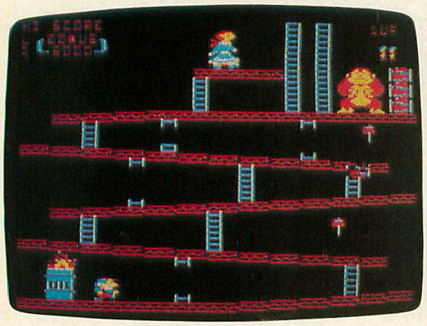
5000 Displays all records in the database.

6000 Clears the X-10, composes messages from active records, and sends them to the X-10.

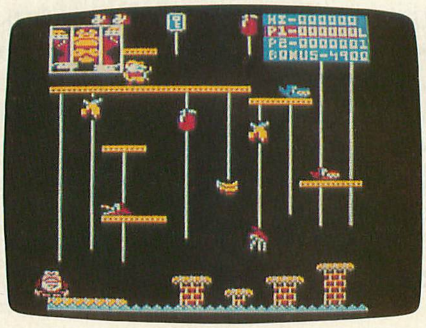
7000-Exit BSRk to BASIC. ■

Listing on page 36   *ST Listing on page 37*

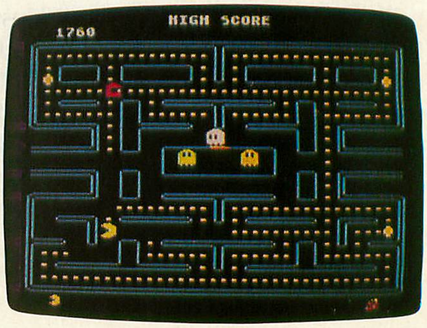
Classic Cartridges II



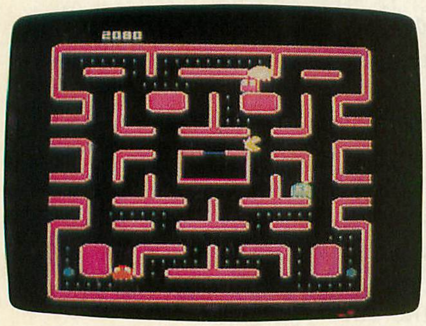
Donkey Kong



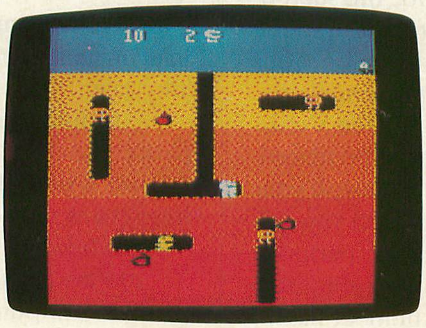
Donkey Kong Jr.



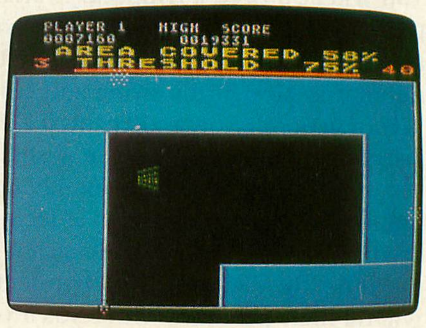
Pac-Man



Ms. Pac-Man



Dig Dug



Qix

Ms. Pac Man, Donkey Kong Jr., Dig Dug and more . . . BY MATTHEW RATCLIFF

Here are some more of the classic Atari game cartridges that are still available for your new Atari XE Game System—or for any other Atari 8-bit computer. Just like the other 10 popular cartridge classics we reviewed in the July 1988 **Antic**, these games are rated on a four-star system.

Classic Atari game cartridges have become easier to find at retail outlets since the release of the XEGS computer last Christmas. You can also order cartridges directly from the Atari Corp. Atari's warehouse stock has been repackaged in uniformly designed boxes and is now priced from $19.95 to $22.95 each. Meanwhile, many dealers are still selling out their old packages at prices below the current list.

DONKEY KONG ★★★½

A very large simian creature has run amok and stolen the hero's sweetheart in this superb port from the original coin-op **Donkey Kong**. Kong doesn't look anything like a Donkey—this game originated in Japan, loosely translating as "Crazy Kong" in English.

You'll make Mario the construction worker climb the girders to retrieve his true love. On the first level you must jump barrels and fireballs and climb ladders toward the fierce Kong and Mario's bewildered darling. Along the

way Mario can jump up and grab some hammers to bash a few barrels, although the longer it takes to get to the top, the smaller bonus score you'll earn and the faster Kong tosses barrels at you. Once you've reached the top, it's true love again—until Kong becomes furious and snatches the lady off to the next level.

Higher yet on the girders, Kong and Mario's girlfriend await. Kong sends down fireballs as you help Mario climb up and across the grid of beams. For bonus points along the way, Mario can pick up personal effects dropped by his kidnapped cutie. When Mario jumps over the pins in the girder, he deftly pulls them out. Once all six pins are removed, the structure falls, taking Kong with it and giving him a serious bonk on the head.

But Kong has one tough noodle, and he moves on to another level, similar to the first screen, but he's much more aggressive with the barrel tossing. If Mario survives this level, he and Kong duke it out on yet another portion of the superstructure where moving elevators, bouncing girders and other hazards continue to challenge Mario.

Donkey Kong is a notably chivalrous game scenario among all too many shoot-em-ups. Eventually Kong defeats Mario, but there's always the [START] key to try again for more points.

DONKEY KONG JR. ★★★

Donkey Kong was a smash hit in the arcades, so Nintendo, the original maker of the Donkey Kong and Mario Brothers video game series, followed up with **Donkey Kong Jr.** In this scenario, Donkey Kong Senior is under lock and key, guarded by the victorious Mario.

In this game you assume the role of poor Kong Junior, desparately trying to save Papa Kong from the vengeful Mario. There are four challenging levels—the vine, chain, jump board and hideout scenes.

On a scale of 1 to 10, I would rate the difficulty level of Donkey Kong at 5, whereas Donkey Kong Jr. is easily an 8 or 9. Only a few times have I gotten past the first screen, in which Junior must jump up onto vines and climb them, knocking down fruits, which can clobber the snapjaws—vine-climbing piranhas. He must jump across platforms and climb until he finally reaches Mario's platform at the top. Here Junior must jump quickly, grab the key and release Papa—briefly. Mario always manages to recapture Donkey Kong Senior, taking you to the next level of game play.

At the chains level Junior must insert six keys into six locks, pushing them up the chains while avoiding birds and more snapjaws. All six keys are needed to unlock Papa Kong, but Mario doesn't waste any time in recapturing him.

At the jump board and hideout levels things get even hairier, with more and stronger foes for poor Junior to conquer along the way.

I recommend this game for master arcade gamers with lightning reflexes. Both Donkey Kong games are superb conversions of the original coin-arcade hits.

PAC-MAN ★★★½

Not every video game has a breakfast cereal, a kids' noodle snack and a Saturday morning cartoon named after it, but **Pac-Man** does. Mr. Pac is into eating dots, and the ghosts are out to eat him. Along the way Pac-Man can eat the flashing power pills for bonus points, briefly turning the tables on the nasty ghosts.

This is a perfect conversion of the Arcade classic, much better than the "flicker-matic" version done for the Atari 2600. It can get boring once you've mastered the lower levels, but you can always speed it up at the options screen before starting.

The maze screen remains the same at every level. The arcade original was quite susceptible to "pattern playing." Once you had the basic actions of the ghosts down pat, you could play a certain "pattern" at each level and really rack up the points. However, in the home computer version, these patterns don't seem to show up, and the game is more challenging.

MS. PAC-MAN ★★★½

The art of video gaming traditionally had been a young man's fancy, but Pac-Man attracted a lot of ladies. Bally (originators of the Pac-Man family) noticed this too, and built a new, more sophisticated, feminine version of a great game.

In **Ms. Pac-Man** that cute little muncher, complete with lipstick and a bow, gobbles dots and power pills, just like her male counterpart, as ghosts chase her about. Unlike Pac-Man, where fruit bonuses are in fixed locations, Ms. Pac-Man must chase them around on the screen. Also, the screens in this rendition differ between levels, making it harder to master all the escape routes from the ghosts.

Ms. Pac-Man is more sophisticated than Pac-Man, maybe a bit more playable and not quite as monotonous. *One* of these games is a must for any complete gamer's cartridge library, but I don't think they're dissimilar enough to purchase both. Maybe Atari could release them both in one super cartridge.

DIG DUG ★★★

Digging for gold isn't a simple job anymore. The hills are infested with all sorts of nasty little creatures, and you're just the high-tech exterminator to do the job.

The introductory music and sound effects of this game are captivating. Your job is to dig through the ground and zap all the little bugs and fire-breathing creatures before they zap *you*. The **Dig Dug** game screen is like looking into Pee Wee Herman's ant farm. If you dig into a cavity occupied by a bug, the critter attacks. You must fire first, zapping it with your lightening-bolt stun-gun. Three zaps are always needed to kill one of these baddies. Wait too long between zaps and the bugs will recover and grab you. Dig under what looks like a buried eggplant, with the bad guys in hot pursuit, and they'll get it in the chops.

You can't wait around too long, or the bugs, in ghost

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Power Manager X-10

Atari home controller connection

By Charles Cherry

One interesting application that was never previously available for any Atari is computer control of the X-10 PowerHouse home controller system. X-10 provides its own software for the Apple II, Commodore 64 and IBM, but left out the Atari. This unfortunate lack has now been corrected by Terrific Corp., whose **PowerManager** provides all the features available on other computers.

MEET THE X-10

For those Atarians not familiar with the X-10 home control system, here's a brief overview:

A master controller turns lights and appliances (or anything else with an electric switch) on and off. A separate slave module is used for each item to be controlled, whether it's a lamp, appliance, wall socket, wall switch or thermostat. The lamp and wall switch modules also provide 16 levels of dimming.

The signals that control the slave modules travel through the normal house wiring. That's the real magic of the X-10 system—no additional wiring is needed. Just plug in the modules and you have remote control. I once worked with a small traveling theater company which used the X-10 system for stage lighting. We just plugged everything into the wall and were ready to go. No need to run cables everywhere. It was great.

X-10 PowerHouse hardware is reasonably priced and widely available from all kinds of stores that sell household electronic supplies. The controllers and modules are sometimes on sale for next to nothing. Even if you pay full price, the system's "power without the price" is an unbeatable value. The X-10 could be called the Atari of remote control systems.

Several different X-10 controllers are made, from simple manual ones to complex timers, wireless transmitters and even a telephone operated controller. The controller we're concerned with is the model CP290, PowerHouse RS-232 Computer Interface. With this controller—and the proper software and cable—your computer controls the PowerHouse system. The PowerManager provides the proper software and a cable that connects your Atari to the CP290.

THE POWERMANAGER

The PowerManager cable plugs into joystick port 2. This saves you the cost of an RS-232 interface (such as an Atari 850 or a P:R: Connection). But it means you must be careful with the cable. Don't leave it plugged in when you run other software. Likewise, don't leave things like your PaperClip key plugged in when you run PowerManager.

The software is very similar to what's available for the other computers, except that X-10 software uses graphics—pictures of rooms into which you put icons of your lamps and appliances. PowerManager, however, identifies the devices numerically. Personally, I think PowerManager got it right. The X-10 pictures are cute, but they don't look like my house and there's no logical way to indicate devices that aren't in a room, like the porch lamp, the garage light or the automatic sprinkler system.

The X-10 interface is limited to 16 devices. Eight can be manually controlled by switches on the interface and all 16 can be controlled by the computer. Actually, many more than 16 can be controlled by the computer. It seems that since the signals travel on the house wiring, there's a chance that you will also control your neighbor's X-10 system, if you are connected to the same local transformer (those big boxes on top of utility poles, usually serving about half a block).

To prevent this, each device can be set for a "house code." You and your neighbors decide who gets what code: "You're A, I'm B and the Murdocks are C." There are 16 house codes. If more families on your block get X-10 systems, you're out of luck. However, it's unlikely that many of your neighbors are using the PowerHouse system. This means all those house codes are available for you—16 house codes with 16 devices each, adds up to 256 devices. Now *that's* a respectable remote control system.

You can use the PowerManager software in two different ways. First, you could control your house directly from the keyboard or joystick. More likely, you will choose to program the interface to run from its internal timer. You can schedule as many as 128 different events. Each event can control one, several, or all of the 16 devices in one house code. You schedule each event for a specific time and have it automatically repeat on one or more days of the week. Or you can program events to occur on each scheduled day within an hour of the set time. This makes your home looked more lived-in while you are on vacation.

When your schedule is complete, you can save it to disk. You can build a library of schedules for various situations, such as summer, winter, vacations, etc. Once you select a schedule and upload it to the X-10 interface, the interface runs on its own. So you can use your computer for other things. The interface even has a 10-hour battery backup in case of power failure.

A FEW COMPLAINTS

I found the logic structure of the menus inconvenient. You can only set the time and the default house code upon first booting. The arrow keys and [RETURN] are inconsistent and you cannot exit from a menu when you want to.

Another problem is the clock. It changes from a.m. to p.m. and back at *1 o'clock*, not 12, so 12:30 in the afternoon must be entered as 12:30 AM, and 12:30 at night must be entered as 12:30 PM.

Also, I kept getting the following cryptic message: "*Error: Interface was powered down.*" I couldn't understand this, since the interface was plugged in and seemed to be working fine. In fact, everything worked just as it should have. Later when I read the X-10 programming guide, I realized the PowerManager was saying that the memory of the interface had been erased—it had been unplugged and "forgot" its previous programming. I don't think that qualifies as an error.

PUTTING THE SYSTEM TO WORK

The PowerMaster X-10 was designed for home control and it works well there. I particularly enjoy waking to the glorious sound of my monster stereo instead of my tinny little clock radio. The system makes coffee and toast in the morning and it warms up the electric blanket before

continued on next page

POWER MANAGER X-10

continued from previous page

bedtime. It has eliminated the need for a $75 programmable set-back thermostat, and it remembers to turn on the porch light before my wife gets home and turn it off when we go to bed. When I get some relays and solenoids, I'll build an automatic cat feeder.

Home control is sort of a game. It's fun to plan your 21st-century house. This programmable system can replace many expensive dedicated systems to control sprinklers, solar heating, fans, security systems, etc. And it's all done with little or no rewiring. However, the X-10 is not limited to the home. (Remember, we used it for a theater.)

BEYOND THE HOUSE

Any application requiring remote control is a candidate for the X-10. And if that remote control needs to be programmed, an Atari with the PowerManager is a cost-effective solution. The individual modules are limited to switching 15 amps or dimming 300 watts, but they can drive relays to control larger loads like floodlights and electric signs.

Of course, the system is a natural for science fair projects and other experimental control systems. You should be warned, however, that in the scheduled mode, it's only accurate to within one minute. In the direct mode, you can get about 10-second accuracy, but that brings up another problem. There's no information on using this system in your own programming. The X-10 software for other computers includes a utility program to help you write BASIC applications. We could use the same for the PowerManger.

Writing custom software using the Atari's joystick and paddle inputs can create a simple data acquisition and process control system. A moisture sensor can trigger a pump, a phototransistor can turn off the lights, the vast array of security detectors (motion sensors, magnetic field detectors, infrared sensors) can be used to set off the appropriate responses.

***(Antic** would be interested in publishing software/hardware articles about interesting, original X-10 PowerManager uses.*—ANTIC ED) ■

POWERMANAGER
Terrific Corp.
17 St. Mary's Court
Brookline, MA 02146
(617) 232-2317
$44.95, 48K disk. (Includes cable)

X-10 POWERHOUSE CP290
X-10 (USA) Inc.
185A Legrand Avenue
Northvale, NJ 07647
(800) 526-0027
(201) 784-9700—New Jersey
$49.99

CLASSIC CARTRIDGES II

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fashion, will fly through walls after you. The last bug at each level always hightails it for the exits—zap him for bonus points.

Each level has more bugs to bonk. They're more vicious and they move faster. Eventually the mines and bugs are the death of you.

All too many games are simply an exercise in wrist wrenching in pursuit of a higher score. Dig Dug is a bit too cutesy, but it's a faithful conversion of the popular original coin-op game.

QIX ★★

In **Qix**, you must protect your land from the invading grid bugs. On a large, mostly blank display you begin drawing boxes. If you're brave, holding the fire button during the draw slows you down for more points. Each time your drawing line reaches a previously drawn edge, the land is filled and reclaimed as yours. Land reclaimed slowly, in red, is more valuable than that gained quickly.

This game is an accurate conversion of the coin op, but seems just too slow. If you liked the arcade original, then this classic deserves a place in your cartridge library. If Atari ever re-releases Qix, they should consider speeding it up. ■

$19.95 to $22.95 each. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (415) 745-2000.

SOFTWARE LIBRARY

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by **Antic** are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—*not* with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

0123456789 0123456789

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL −
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		SHIFT =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	人 CTRL ,		CTRL X
	人 CTRL A		CTRL Y
	人 CTRL B		CTRL Z
	人 CTRL C		ESC SHIFT DELETE
	人 CTRL D		ESC SHIFT INSERT
	人 CTRL E		ESC CTRL TAB
	人 CTRL F		ESC SHIFT TAB
	人 CTRL G		人 CTRL .
	人 CTRL H		人 CTRL ;
	人 CTRL I		人 SHIFT =
	人 CTRL J		ESC CTRL 2
	人 CTRL K		ESC CTRL DELETE
	人 CTRL L		ESC CTRL INSERT
	人 CTRL M		
	人 CTRL N		
	人 CTRL O		
	人 CTRL P		
	人 CTRL Q		
	人 CTRL R		
	人 CTRL S		
	人 CTRL T		
	人 CTRL U		
	人 CTRL V		
	人 CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key 人 instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
	CTRL F	/	/
	CTRL G	\	SHIFT +
	CTRL N	—	SHIFT −
	CTRL R	-	−
	CTRL S	+	+

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

GAME OF THE MONTH

BLACK BOX

Article on page 17

LISTING 1

Don't type the TYPO II Codes!

```
XA 5 REM BLACK BOX
NT 10 REM BY KEN ARROMDEE
QP 15 REM (c)1988, ANTIC PUBLISHING
AD 20 DIM Q$(1):Q$=CHR$(34)
RD 30 GOSUB 1470
CZ 40 GRAPHICS 0:POKE 709,0:POKE 710,10:P
   OKE 712,10
OS 50 TRAP 80:? "How many particles? (8 m
   aximum) ";:INPUT #16;P
FR 60 IF P>8 THEN ? "The maximum is 8.":G
   OTO 50
JL 70 IF P>0 AND P=INT(P) THEN TRAP 65535
   :GOTO 90
GS 80 ? "Please type an integer.":GOTO 50
EX 90 TRAP 110:? :? "Do you want the blac
   k box to be":? "     8 by 8  or  10 by
   10?":? :? " (Type 8 or 10) ";
AE 92 INPUT #16;SIZE
AC 95 IF SIZE<>8 AND SIZE<>10 THEN 110
MH 100 TRAP 40000:GOTO 120
JB 110 ? "Type an 8 or 10.":GOTO 90
UM 120 GOSUB 1080
VW 130 OLDX=1:OLDY=-1:OLDDIR=4:X1=1:Y1=1:
   TURNS=0:IF SIZE=10 THEN OLDX=0:X1=0:Y1
   =0
QQ 140 IF SIZE=10 THEN COLOR 171:FOR I=1
   TO 10:FOR J=1 TO 10:PLOT I,J:NEXT J:NE
   XT I:GOTO 180
VN 150 COLOR 3:PLOT 1,1:COLOR 4:PLOT 2,1:
   DRAWTO 9,1:PLOT 2,10:DRAWTO 9,10
VL 160 COLOR 5:PLOT 10,1:COLOR 7:PLOT 1,1
   0:COLOR 8:PLOT 10,10:COLOR 6:PLOT 1,2:
   DRAWTO 1,9:PLOT 10,2:DRAWTO 10,9
EB 170 COLOR 171:FOR I=2 TO 9:FOR J=2 TO
   9:PLOT I,J:NEXT J:NEXT I
PP 180 POKE 623,4:POKE 53256,3:POKE 53261
   ,255:POKE 704,128:POKE 53248,144
WP 190 POKE 53257,3:POKE 705,128:POKE 532
   62,255:POKE 53249,176
ZD 200 POKE 53258,3:POKE 706,128:POKE 532
   63,255:POKE 53250,208
AA 210 POSITION 14,2:? #6;"black":POSITIO
   N 15,3:? #6;"box"
LT 220 POSITION 13,5:? #6;"turns ";TURNS
ZM 230 POSITION 14,7:? #6;"PRESS"
BU 240 POSITION 13,8:? #6;"SELECT"
PV 250 POSITION 15,9:? #6;"TO "
ZF 260 POSITION 14,10:? #6;"GUESS"
ES 270 FOR I=1 TO P
VB 280 X=INT(RND(0)*SIZE)+2-(SIZE=10):Y=I
   NT(RND(0)*SIZE)+2-(SIZE=10)
TU 290 LOCATE X,Y,D:IF D<>171 THEN 280
PS 300 COLOR 172:PLOT X,Y
FV 310 NEXT I
JW 320 LET LETTER=ASC("A")
```

continued on next page

```
PI 330 X=OLDX:Y=OLDY:DIR=OLDDIR
TZ 340 LOCATE X+1,Y+1,UNDER:POSITION X+1,
   Y+1:? #6;"█"
LF 350 FOR DELAY=1 TO 30:NEXT DELAY
FQ 360 IF STRIG(0)=0 AND UNDER=32 THEN 55
   0
IF 370 S=STICK(0)
SK 380 POSITION X+1,Y+1:? #6;CHR$(UNDER)
XW 390 IF PEEK(764)=33 THEN 1250
CN 400 IF PEEK(53279)=5 THEN FOR I=1 TO 4
   0:NEXT I:GOSUB 1330
PM 410 IF S=15 THEN 340
FL 420 ON DIR GOTO 430,460,490,520
QT 430 Y=Y+(S=13)-(S=14):IF Y=(SIZE=8)-1
   THEN Y=-1:X=(SIZE=8):DIR=4
IP 440 IF Y=9+(SIZE=10) THEN Y=10:X=(SIZE
   =8):DIR=2
OF 450 GOTO 340
AU 460 X=X+(S=7)-(S=11):IF X=(SIZE=8)-1 T
   HEN X=-1:Y=8+(SIZE=10):DIR=1
KC 470 IF X=9+(SIZE=10) THEN X=10:Y=8+(SI
   ZE=10):DIR=3
OL 480 GOTO 340
EL 490 Y=Y+(S=13)-(S=14):IF Y=(SIZE=8)-1
   THEN Y=-1:X=8+(SIZE=10):DIR=4
HU 500 IF Y=9+(SIZE=10) THEN Y=10:X=8+(SI
   ZE=10):DIR=2
NY 510 GOTO 340
TA 520 X=X+(S=7)-(S=11):IF X=(SIZE=8)-1 T
   HEN X=-1:Y=(SIZE=8):DIR=1
KG 530 IF X=9+(SIZE=10) THEN X=10:Y=(SIZE
   =8):DIR=3
OE 540 GOTO 340
CD 550 POSITION X+1,Y+1:? #6;" ":MOVE=1
MF 560 OLDX=X:OLDY=Y:OLDDIR=DIR:IF SIZE=1
   0 THEN 610
CN 570 IF X=10 THEN X=9
DP 580 IF Y=10 THEN Y=9
UQ 590 IF X=-1 THEN X=0
UZ 600 IF Y=-1 THEN Y=0
JU 610 ON DIR GOTO 630,670,710,750
RC 620 REM DIR 1=MOVING RIGHT
UQ 630 LOCATE X+2,Y+1,FRONT:LOCATE X+2,Y,
   LEFT:LOCATE X+2,Y+2,RIGHT
VT 640 GOSUB 930
HA 650 X=X+1:GOTO 780
EA 660 REM 2=MOVING UP
EB 670 LOCATE X+1,Y,FRONT:LOCATE X,Y,LEFT
   :LOCATE X+2,Y,RIGHT
WB 680 GOSUB 930
IK 690 Y=Y-1:GOTO 780
HJ 700 REM 3=MOVING LEFT
LP 710 LOCATE X,Y+1,FRONT:LOCATE X,Y,RIGH
   T:LOCATE X,Y+2,LEFT
VQ 720 GOSUB 930
HN 730 X=X-1:GOTO 780
SA 740 REM 4=MOVING DOWN
SV 750 LOCATE X+1,Y+2,FRONT:LOCATE X+2,Y+
   2,LEFT:LOCATE X,Y+2,RIGHT
VY 760 GOSUB 930
YE 770 Y=Y+1
CQ 780 IF X>=(SIZE=8) AND X<=8+(SIZE=10)
   AND Y>=(SIZE=8) AND Y<=8+(SIZE=10) THE
   N 610
EB 790 IF SIZE=10 THEN 850
KA 800 ON DIR GOTO 810,820,830,840
FL 810 X=X+1:GOTO 850
GP 820 Y=Y-1:GOTO 850
GF 830 X=X-1:GOTO 850
XZ 840 Y=Y+1
FL 850 TURNS=TURNS+2:GOSUB 10000
GR 860 POSITION X+1,Y+1:? #6;CHR$(LETTER)
   :POSITION OLDX+1,OLDY+1
GW 870 ? #6;CHR$(LETTER):LET LETTER=LETTE
   R+1:GOTO 900
EV 880 GOSUB 10000:TURNS=TURNS+1:POSITION
    OLDX+1,OLDY+1:? #6;CHR$(138):GOTO 900

VA 890 GOSUB 10000:TURNS=TURNS+1:POSITION
    OLDX+1,OLDY+1:? #6;CHR$(9):GOTO 900
WW 900 POSITION 13,5:IF TURNS>9 THEN POSI
   TION 12,5
YI 910 ? #6;"turns ";TURNS
NT 920 GOTO 330
EI 930 IF FRONT=172 OR FRONT=140 THEN POP
   :GOTO 880:REM ABSORPTION
NB 940 IF MOVE=1 THEN IF LEFT=172 OR RIGH
   T=172 OR LEFT=140 OR RIGHT=140 THEN PO
   P :GOTO 890:REM REFLECTION
XX 950 IF (LEFT=172 OR LEFT=140) AND (RIG
   HT=172 OR RIGHT=140) THEN POP :GOTO 89
   0:REM REFLECTION
SA 960 MOVE=MOVE+1
KD 970 IF LEFT<>172 AND RIGHT<>172 AND LE
   FT<>140 AND RIGHT<>140 THEN RETURN :RE
   M NOTHING AHEAD
QI 980 IF RIGHT=172 OR RIGHT=140 THEN 104
   0
MF 990 REM BOUNCE RIGHT
SC 1000 DIR=DIR-1:IF DIR=0 THEN DIR=4
LD 1010 POP
PN 1020 GOTO 610
XD 1030 REM BOUNCE LEFT
SB 1040 DIR=DIR+1:IF DIR=5 THEN DIR=1
LP 1050 POP
PZ 1060 GOTO 610
PY 1070 REM CHARACTER REDEFINITION
BG 1080 GRAPHICS 18:POKE 106,PEEK(106)-3:
   CHBASE=PEEK(106)+1:GRAPHICS 18:POKE 75
   6,CHBASE:CHBASE=CHBASE*256
ET 1090 DV=USR(ADR("hhΓUhΓThΓWhΓU█□█♥ITΓU
   HPYfUfWJPP◆"),57344,CHBASE)
VY 1100 READ CHNUM:IF CHNUM=-1 THEN POKE
   709,102:POKE 710,182:POKE 711,72:POKE
   708,26:RETURN
XM 1110 FOR I=CHBASE+8*CHNUM TO CHBASE+8*
   CHNUM+7:READ D:POKE I,D:NEXT I:GOTO 11
   00
DK 1120 DATA 1,255,153,153,255,255,153,15
   3,255
GT 1130 DATA 3,0,0,0,31,31,24,24,24
TX 1140 DATA 4,0,0,0,255,255,0,0,0
TP 1150 DATA 5,0,0,0,248,248,24,24,24
EH 1160 DATA 6,24,24,24,24,24,24,24,24
ZF 1170 DATA 7,24,24,24,31,31,0,0,0
ML 1180 DATA 8,24,24,24,248,248,0,0,0
EY 1190 DATA 9,60,82,137,197,163,145,74,6
   0
KG 1200 DATA 10,255,129,189,165,165,189,1
   29,255
XT 1210 DATA 11,255,129,129,129,129,129,1
   29,255
YI 1220 DATA 12,255,129,129,129,129,129,1
   29,255
ER 1230 DATA -1
SR 1240 REM SHOW PARTICLE LOCATION
JT 1250 RESTORE 1250:FOR I=CHBASE+96 TO C
   HBASE+103:READ D:POKE I,D:NEXT I
YN 1260 DATA 60,126,255,255,255,255,126,6
   0
SW 1270 POSITION 13,8:? #6;"TRIGGER":POSI
   TION 15,9:? #6;"TO":POSITION 14,10:? #
   6;"REDO "
WW 1280 IF STRIG(0) THEN 1280
AZ 1290 POSITION 0,0:? #6;"K"
ZS 1300 FOR I=CHBASE+96 TO CHBASE+103:POK
   E I,PEEK(I-8):NEXT I
WC 1310 POKE 764,255:GOTO 130
ZS 1320 REM GUESS MODE
ZL 1330 POSITION 14,10:? #6;"PROBE"
QC 1340 S=STICK(0)
MC 1350 X1=X1+(S>=5 AND S<=7)-(S>=9 AND S
   <=11):IF X1>8+(SIZE=10) THEN X1=(SIZE=
   8)
AW 1360 IF X1<(SIZE=8) THEN X1=8+(SIZE=10
   )
MU 1370 Y1=Y1+(S=5 OR S=9 OR S=13)-(S=6 O
   R S=10 OR S=14):IF Y1>8+(SIZE=10) THEN
    Y1=(SIZE=8)
CL 1380 IF Y1<(SIZE=8) THEN Y1=8+(SIZE=10
   )
BL 1390 LOCATE X1+1,Y1+1,UNDER1:POSITION
   X1+1,Y1+1:? #6;"!"
RF 1400 IF STRIG(0) THEN 1410
NJ 1405 FOR I=1 TO 30:NEXT I:UNDER1=UNDER
   1+32*(UNDER1<160)-32*(UNDER1>160)
EV 1410 FOR I=1 TO 10:IF PEEK(53279)=5 TH
   EN 1437
FU 1415 NEXT I
KC 1420 POSITION X1+1,Y1+1:? #6;CHR$(UNDE
   R1)
OH 1430 IF PEEK(764)=33 THEN POP :GOTO 12
   50
RJ 1435 GOTO 1340
LH 1437 POSITION X1+1,Y1+1:? #6;CHR$(UNDE
   R1)
VC 1440 FOR I=1 TO 30:NEXT I:POSITION 14,
   10:? #6;"GUESS":RETURN
QI 1450 GOTO 1330
QV 1460 REM TITLE PAGE
LQ 1470 GRAPHICS 18:POKE 710,0:POKE 709,4
   0:POKE 708,6
IN 1480 DL=PEEK(560)+PEEK(561)*256:POKE D
   L+10,6
VJ 1490 POSITION 6,3:? #6;"black box"
KG 1500 POSITION 3,5:? #6;"BY KEN ARROMDE
   E"
JK 1510 POKE DL+13,2:POSITION 10,8:? #6;"
   PRESS TRIGGER TO PLAY"
```

```
UM 1530 IF STRIG(0) THEN 1530
AV 1540 RETURN
HS 9999 REM RANDOM DELAY
QX 10000 FOR I=1 TO 60-6*MOVE+40*RND(0):N
   EXT I:RETURN
```

LISTING 2

```
AX 10 REM BLACK BOX, LISTING 2
NU 20 REM BY KEN ARROMDEE
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:?  "       AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
KH 1000 DATA 66
TJ 1010 DATA 04904805704803206808606108508
   30820400065068082040003410410413321310
   41332121041332151041332141 62
AK 1020 DATA 00216000017721214521420020824
   92302132302152022082400960340410440530
   55051052052044067072066065
RD 1030 DATA 083069041155
```

BONUS: LIGHT GUN SPRAY-PAINTER

Article on page 42

XE GAME SYSTEM MANAGER

LISTING 1

Don't type the TYPO II Codes!

```
PB 10 REM DRAWGUN.BAS
IG 20 REM BY MATTHEW RATCLIFF
QH 30 REM (c)1988, ANTIC PUBLISHING
VX 40 XMAX=0:YMAX=0:CH=764
CW 60 LPENH=564:LPENV=565
WN 80 GRAPHICS 8+16:POKE 709,0:POKE 710,1
   0+7*16:POKE 712,12
IV 90 X=PEEK(LPENH)
ID 100 IF (X<=27) THEN X=227+X
UV 110 X=X-86
DI 120 REM SCALER -> (227-86+27)=168
RY 130 X=319*X/168:REM 86 <= LPENH <= 227
   , PAST 227 THEN 0-27
EM 140 IF X<0 THEN X=0
JD 150 IF X>319 THEN X=319
HC 160 Y=PEEK(LPENV)
TS 170 Y=Y-17
JD 180 REM SCALER -> (111-17)=94
QL 190 Y=191*Y/94:REM 17 <= LPENH <= 111
   IN MY TESTS
FE 200 IF Y<0 THEN Y=0
GX 210 IF Y>191 THEN Y=191
NL 220 IF STICK(0)=14 THEN LOCATE X,Y,A:C
   OLOR 0:PLOT X,Y:COLOR 1:PLOT X,Y:COLOR
    A:PLOT X,Y:GOTO 90
AG 230 COLOR 1:PLOT X,Y:GOTO 90
```

LISTING 2

```
PG 10 REM XEGSMGR.BAS
IG 20 REM BY MATTHEW RATCLIFF
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
FJ 70 FN$="D:XEGSMGR.EXE":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:?  "       AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
JD 1000 DATA 2443
PV 1010 DATA 25525500000522510520322190571
   69000141198002032254058173250003240003
   076025054032184059076049052
HT 1020 DATA 25221917722103208411714110O
   32160207206160032066065083073067032252
   155004162025160052032174058
MY 1030 DATA 07608305225222191782210320841
   71114110032160207198198032066065083073
   067032252155004162059160052
SQ 1040 DATA 03217405807611705225222191792
   21032082117110032243229236230160244229
   243244032032032252155004162
II 1050 DATA 09316005203217405807615105225
   22191802210320820790770320790470830321
   16111032082065077032032252
GO 1060 DATA.15500416212716005203217405807
   61850522522219181221032082065077032079
   047083032116111032082079077
```

```
CB 1070 DATA 0320322521550041621611600520
   32174058076219052252219182221032077105
   115115105108101032067111109
YD 1080 DATA 1090971101000322521550041621
   95160052032174058032219059032219058169
   029133082162000169011157066
LU 1090 DATA 0031691521570680031690581570
   69252052247053003169022157072003169000
   157073003032086228032087058
MN 1100 DATA 0721690021330820322190581042
   01049208048173001211041253141001211169
   160133106032219057169000141
TM 1110 DATA 2480030322190580760640531601
   94193211201195160207206160155004162052
   160053032174058076085057201
DQ 1120 DATA 0502080491730012110090021410
   01211169192133106032219057032219058169
   001141248003076117053160194
WG 1130 DATA 1932112011951602071981981601
   55004162104160053032174058076085057201
   051208030032078053173001211
PK 1140 DATA 0090011410012110322190571730
   01211041127141001211169001141068002076
   000080201052240022201053208
MU 1150 DATA 0091650090410011330090761162
   28076254059032011058076000052173000007
   201083208084169002133082165
EB 1160 DATA 0090410011330090322190570762
   35053160210193205160207175211160206239
   244160233238243244225236236
GL 1170 DATA 2292281611550041622101600530
   32174058076014054170170160248053243054
   211240225242244225160196207
MK 1180 DATA 2111602332381602452432291611
   70170155004162245160053032174058096076
   211054169002133082032219058
EV 1190 DATA 1730000072010832401550760720
   54160197216212197210206193204160195193
   210212210201196199197160208
ZK 1200 DATA 2101972111972062121601550041
   62042160054032174058076107054067079078
   086069082084032082079077032
SA 1210 DATA 0790830320270310320820650770
   32063155004162082160054032174058076154
   054040084121112101032039089
RI 1220 DATA 0390321111140320390780390320
   97110100032112114101115115032082069084
   085082078041032155004162117
RZ 1230 DATA 1600540321740580320870582016
   89240043201078240006032011058076000052
   032219057076085057068049058
RI 1240 DATA 0420460700780841550680490580
   70073076069078065077069046069088084155
   155155162000172086061189106
EX 1250 DATA 0601570000062321362082460320
   00006076006055032252210193205160207175
   211160200225244054239055238
HQ 1260 DATA 2282362292421602012382432442
   25236236229228252155004162232160054032
   174058076046055032252160226
IE 1270 DATA 2491602052252441702102252441
   60230242239237160193238244233227161160
   160252155004162016160055032
JX 1280 DATA 1740580760860550322521601962
   33243235160244239160236239225228160230
   239238244160230242239237191
ZM 1290 DATA 1602521550041620561600550321
   74058076121055032040049045056044032048
   061069120105116044032110111
PV 1300 DATA 0321081110971000411550041620
   96160055032174058032087058201155240004
   201048208001096201057144006
AT 1310 DATA 0320110580760530552010491760
   06032011058076053055141185054162016169
   012157066003032086228162016
EY 1320 DATA 1690031570660031690061570740
   03169000157075003169184157068003169054
   157069003032086228152016036
FW 1330 DATA 0762220550791121011100321011
   14114111114046155004162209160055032174
   058162016169012157066003032
LI 1340 DATA 0862280762400552350560530550
   32121058152048033162000169009157066003
   169000157068003169004157069
MJ 1350 DATA 0031690201570720031690001570
   730A3032086228076242055162016169012157
   066003032086228076058056070
PL 1360 DATA 1111101160321021051081010321
   16111032108111097100063155004162038160
   056032174058076090056040210
OR 1370 DATA 1972122132102060321021111140
   32110101119032100105114041155004162068
   160056032174058032087058173
KA 1380 DATA 0000042011552080030760530550
   32110057162016169003157066003169004157
   074003169000157075003169193
FA 1390 DATA 1570680031690541570690030320
   86228016072162000169009157066003169193
   157068003169054157069003169
EA 1400 DATA 0151570720031690001570730030
   32086228076197056067097110039116032111
   112101110032102105108101253
JN 1410 DATA 0331550041621781600560321740
   58162016169012157066003032086228076053
   055162016169007157066003169
WD 1420 DATA 0001570680031692241570690031
   69000236056231057157072003169004157073
   003032086228162016169012157
QG 1430 DATA 0660030320862280760260570820
   65077032079047083032070111110116032108
   111097100101100046155004162
VI 1440 DATA 0041600570321740580760710570
   91049093032069120105116032091050093032
   076111097100032100105102102
SH 1450 DATA 1011141011101160321021111101
   16063155004162036160057032174058032087
   058201049208012169005133214
TZ 1460 DATA 0322190581982142082490962010
   50240006032011058076001057076053055173
   001004201058240043173002004
YP 1470 DATA 2010582400361690681411930541
   73185054141194054169058141195054162013
   160000185000004153196054201
WE 1480 DATA 1552400282002022082422400221
   62016160000185000004153193054201155240
   008201000240004200202208238
HF 1490 DATA 1620001891930542010462400272
   01155240009201000240005232224016208236
   160000185188054157193054232
JX 1500 DATA 2001920052082440961620961690
   12157066003032086228162096169232057227
   058003157066003169083141000
VL 1510 DATA 0041690581410010041690041570
   69003169000157075003157068003169028157
   074003076086228169002133082
YN 1520 DATA 1690391330830322190580760410
   58160201206214193204201196160203197217
   160253155004162025160058032
MK 1530 DATA 1740580760760580800820690830
   83032210197212213210206032084079032082
   069083084065082084155004162
MJ 1540 DATA 0511600580321740580320870580
   96162000169005157066003169000157068003
   169004157069003169020157072
JD 1550 DATA 0031690001570730030320862281
   73000004096162016169005157066003169000
   157068003169004157069003169
PE 1560 DATA 0201570720031690001570730030
   32086228096212249240229160163160166160
   240242229243243160210197212
RJ 1570 DATA 2132102061911420680031342121
   40069003132213160000140072003140073003
   177212201004240011238072003
DD 1580 DATA 2080032380730032002082391690
   11162000141066003076086228076223058155
   162000169009157228058223059
CW 1590 DATA 0660031692221570680031690581
   57069003169001157072003169000157073003
   032086228096169007133082032
UH 1600 DATA 2190580321840590760350592521
   60160212232229160216197199211160205225
   238225231229242160160252155
GJ 1610 DATA 0041620111600590321740580760
   69059252194249160205225244244232229247
   160210225244227236233230230
GB 1620 DATA 1602521550041620451600590321
   74058076103059252160160160195239240249
   242233231232244160177185184
SR 1630 DATA 1841601601602521550041620791
   60059032174058076137059252160160160193
   238244233227160205225231225
IK 1640 DATA 2502332382291601601602521550
   04162113160059032174058076171059252177
   173181160216204175216197160
SO 1650 DATA 2272392372402252442332262362
   29252155004162147160059032174058032219
   059076219058076211059145146
OL 1660 DATA 1461461461461461461461461461
   46146146146146146146146146133155004
```

```
   16218716005903217405809607 6
SA 1670 DATA 246059154146224059219060146 1
   461461461461461461461461461461461461 46
   146146146146146131155004162
FL 1680 DATA 222160059032174058096172105 0
   601620001420680021890190601570000062 32
   136208246076000006169015133
EI 1690 DATA 002169006133003169002133009 0
   761162281730012110090021410012111730 01
   211041191141001211169007141
WT 1700 DATA 042006169000160000153000007 2
   002082502380420061740420062241602082 40
   160128153000000200208250032
XY 1710 DATA 082006169015133002169006133 0
   031690021330091082501911082541910960 86
   169000133002169006133003165
DZ 1720 DATA 009009002133009120169000141 0
   470021330161410002121410142101410142 12
   133219169001133066169192162
TL 1730 DATA 204032183006169216162224032 1
   830061730312082010072080051732260062 08
   010169224162228032183006238
GQ 1740 DATA 226006169228162000032183006 1
   691281330161410142101690641410142121 69
   034141047002141000212198066
FX 1750 DATA 088162096169012157066003032 0
   862281622200600850610961690031570660 03
   169083141000004169058141001
BL 1760 DATA 004169004157069003169000157 0
   750031570680031690281570740030320862 28
   162000160002189228006145088
XV 1770 DATA 200232224008208245169000133 0
   202380002241650202010162082502060002 24
   096133217134218160000132216
GL 1780 DATA 173001211009001141001211177 2
   161701730012110412541410012111381452 16
   230216208230230217165218197
LB 1790 DATA 217208222096000000000178161 1
   731281751431790860610860612362240022 25
   002000052
```

DOLLARS AND CENTS WHERE YOU WANT THEM

NUMBER PRINT

Article on page 22

LISTING 1

Don't type the TYPO II Codes!

```
YM 10 REM PRINT-USR DEMO
WY 20 REM BY MARC ESCOLA
QH 30 REM (c)1988, ANTIC PUBLISHING
CI 60 DIM X$(9)
CA 70 GOSUB 1000:REM SET UP SUBROUT
GH 80 X$="XX,XXX.XX":X=10:GOSUB 220
RT 90 ? X$;" NORMAL NUMBER"
VA 100 X$="XX,XXX.XX":X=-10:GOSUB 220
NX 110 ? X$;" NEGITIVE NUMBER"
XJ 120 X$="X$,XXX.XX":X=22.25:GOSUB 220
JS 130 ? X$;" FLOATING $"
OZ 140 X$="**,XXX.XX":X=5:GOSUB 220
RT 150 ? X$;" ASTERISK FILL"
QP 160 X$="*$,XXX.XX":X=5.1:GOSUB 220
KO 170 ? X$;" ASTERISK FILL,FLOAT $"
OR 180 X$="$$,XXX.XX":X=5.1:GOSUB 220
NW 190 ? X$;" LOTS OF MONEY"
TI 200 STOP
QZ 220 X=USR(ADR(SUB$),ADR(X$),LEN(X$)):R
   ETURN
UI 1000 DIM SUB$(293)
JV 1010 SUB$(1,73)="[illegible]"
PI 1020 SUB$(74,146)="[illegible]"
DW 1030 SUB$(147,220)="[illegible]"
FY 1040 SUB$(221,293)="[illegible]"
AO 1050 RETURN
```

LISTING 2

```
YM 10 REM PRINT-USR DEMO
WY 20 REM BY MARC ESCOLA
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
ZG 35 REM (CREATES LINES 1010-1040 FOR NU
   MPRINT.BAS)
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
KZ 1000 DATA 377
BM 1010 DATA 049048049048032083085066036 0
   400490440550510410610341041041332061 04
   133205104104133207198207160
XL 1020 DATA 002177138201045240003200016 2
   472001771382010632082421361361771380 41
   127160000132204010010038204
UB 1030 DATA 010038204024101134133203165 1
   351012041332041620071600091772031492 12
   136202016248169048034155049
BS 1040 DATA 048050048032083085066036040 0
   550520440490520540410610341411270050 32
   230216173127005201048208018
CN 1050 DATA 162000160001185127005157127 0
   052002322011270482440162311690321332 12
   133213160001177205201036240
LK 1060 DATA 006201042240002208006133212 1
   690881452051361772052010882400061332 13
   169088145205164207177034155
UT 1070 DATA 049048051048032083085066036 0
   400490520550440500500480410610342052 01
   046240007136016247164207016
CK 1080 DATA 004136016001200162000189127 0
   050480102010462400032320162442020480 37
   189127005201045208004162000
II 1090 DATA 240018177205201088240005136 0
   480280162341891270050160020411271452 05
   136048014202016219165212145
XE 1100 DATA 205034155049048052048032083 0
   850660360400500500490440500057051041 061
   034165213133212136016245164
WI 1110 DATA 207177205201046240005136016 2
   470480522001620001891270050480292010 46
   240003232016244232189127005
UT 1120 DATA 048011145205200196207240243 0
   482410160200411271452052001962072400 04
   048002016007169048145205200
BP 1130 DATA 016241096034155
```

BSRk X-10 HOME CONTROLLER

LISTING 1

Don't type the TYPO II Codes!

```
EJ 10 REM BSR INTERFACE PROGRAM
LU 11 REM BY WALTER D. LAZEAR
QP 15 REM (c)1988, ANTIC PUBLISHING
FN 20 GOSUB 400:GOTO 700
BV 49 REM SET 850
GD 50 CLOSE #5:OPEN #5,13,0,"R:":XIO 40,#
   5,0,0,"R:":RETURN
BZ 99 REM PUT MSG TO BSR
DF 100 FOR N=1 TO LEN(MSG$):? #5;MSG$(N,N
   );:FOR NN=1 TO 5:NEXT NN
OH 110 NEXT N:RETURN
YE 149 REM GET MSG BYTE
ZP 150 GET #5,A:RETURN
HI 199 REM GET ACK
CT 200 FOR N=1 TO 7:GOSUB 150:NEXT N:CLOS
   E #5:RETURN
WK 249 REM DO CHECKSUM (USE START & FINIS
   H)
QJ 250 MSG$(FINISH,FINISH)=CHR$(0):FOR N=
   START TO FINISH-1
FB 260 MSG$(FINISH,FINISH)=CHR$(ASC(MSG$(
   FINISH,FINISH))+ASC(MSG$(N,N)))
OU 270 NEXT N:RETURN
GN 299 REM PRINT HEADER
CV 300 ? "ID-ST DEV,LOC,DAYS,TON,TOFF,LVL
   ,MODE"
AK 310 ? " ":RETURN
PB 349 REM SHOW RECORD
ST 350 ? "                    MTWTFSS"
PC 355 IF NREC<10 THEN ? " ";
NN 360 ? NREC;"-";STAT$;" ";DEVID$;",";LO
   C$(1,7);",";B$;",";TON$;",";TOFF$;",";
   LEVEL$;",";MODE$:RETURN
QM 399 REM INIT PROG
EQ 400 NRECS=24
VX 420 DIM LOC$(10),MSG$(50),SYNC$(16),MO
   DE$(1),SECT(NRECS),CHAR(NRECS),INDEX$(
   20),RECORD$(20),REC$(32),Q$(9)
QV 430 DIM DEVID$(2),LEVEL$(1),TON$(4),TO
   FF$(4),DAY$(7),STAT$(1),B$(7),O$(1):FO
   R N=1 TO 16
NH 440 SYNC$(N,N)=CHR$(255):NEXT N:CLOSE
   #5:XIO 36,#5,9,0,"R1:":XIO 38,#5,32,0,
   "R1:"
TG 445 INDEX$="D:INDEX.BSR":RECORD$="D:DA
   TA.BSR":RETURN
RI 449 REM WRITE RECORD
RH 450 REC$(1)=" ":REC$(32)=" ":REC$(2)=R
   EC$
PF 460 REC$(1,2)=DEVID$:REC$(3,12)=LOC$:R
   EC$(13,16)=TON$:REC$(17,20)=TOFF$:REC$
   (21,21)=LEVEL$
EN 470 REC$(22,22)=MODE$:REC$(23,29)=DAY$
   :REC$(30,30)=STAT$:? #4;REC$:RETURN
ZH 499 REM READ RECORD
QJ 500 INPUT #4;REC$
BV 510 DEVID$=REC$(1,2):LOC$=REC$(3,12):T
   ON$=REC$(13,16):TOFF$=REC$(17,20):LEVE
   L$=REC$(21,21)
VL 520 MODE$=REC$(22,22):DAY$=REC$(23,29)
   :STAT$=REC$(30,30):GOSUB 6600
ZH 530 RETURN
IZ 549 REM GET INDEX
GU 550 CLOSE #2:OPEN #2,4,0,INDEX$:INPUT
   #2;RECS
VP 560 FOR N=1 TO RECS:INPUT #2;SECT:SECT
   (N)=SECT:INPUT #2;CHAR:CHAR(N)=CHAR:NE
   XT N
IB 570 CLOSE #2:RETURN
HD 599 REM PARSE TIME
PY 600 HOUR=INT(TIME/100):MINUTE=TIME-(HO
   UR*100):RETURN
YN 649 REM CLEAR INTERFACE
YV 650 ? "Clearing Interface Memory, OK (
   Y,N)";:INPUT MSG$:IF MSG$<>"Y" THEN ?
   "Interface Not Changed":POP :RETURN
PC 660 MSG$=SYNC$:MSG$(17,17)=CHR$(0):MSG
   $(18,18)=CHR$(96)
ZF 670 GOSUB 50:GOSUB 100:GOSUB 200:RETUR
   N
QU 699 REM MAIN
YP 700 TRAP 700:? "↖":?
UG 710 ? "      BSR MASTER PROGRAM":?
LU 720 ? "      1. Init Database"
ED 730 ? "      2. Set Time"
AP 740 ? "      3. Update Records"
CA 750 ? "      4. Show Active Records"
QV 760 ? "      5. Show All Records"
JM 770 ? "      6. Load BSR Interface"
FI 780 ? "      7. QUIT"
FB 790 INPUT A:TRAP 40000:IF (A>0 AND A<8
   ) THEN ON A GOSUB 1000,2000,3000,4000,
   5000,6000,7000
NV 800 GOTO 700
EJ 999 REM INIT DATABASE
IL 1000 CLOSE #2:OPEN #2,8,0,INDEX$:CLOSE
    #4:OPEN #4,8,0,RECORD$
UR 1010 DEVID$="0 ":LOC$="          ":TON
   $="0   ":TOFF$="0   ":LEVEL$="0":MODE$
   ="X":DAY$="0      "
MG 1020 FOR N=1 TO NRECS:STAT$="I":NOTE #
   4,SECT,CHAR:SECT(N)=SECT:CHAR(N)=CHAR:
   GOSUB 450:NEXT N
CN 1030 ? #2;NRECS:FOR N=1 TO NRECS:? #2;
   SECT(N):? #2;CHAR(N):NEXT N
HP 1040 CLOSE #2:CLOSE #4:? "Initialized
   ";NRECS;" RECORDS":RETURN
EE 1999 REM SET INTERFACE TIME
FG 2000 ? "Day of Week (MON=1,SUN=7)";:IN
   PUT DAY:? "Hour";:INPUT HOUR:? "Minute
   ";:INPUT MINUTE
AI 2010 MSG$=SYNC$:MSG$(17,17)=CHR$(2):MS
   G$(18,18)=CHR$(MINUTE):MSG$(19,19)=CHR
   $(HOUR)
KY 2020 MSG$(20,20)=CHR$(2^(DAY-1)):START
   =18:FINISH=21:GOSUB 250:GOSUB 50:GOSUB
    100:GOSUB 200
DD 2030 ? "DONE":RETURN
UD 2999 REM UPDATE RECORD
HP 3000 ? "↖":GOSUB 550:? "Record #";:INP
   UT NREC:IF NREC<0 OR NREC>NRECS THEN 3
   000
DH 3010 CLOSE #4:OPEN #4,12,0,RECORD$:POI
   NT #4,SECT(NREC),CHAR(NREC):GOSUB 500
TY 3020 GOSUB 350:? :? "1 = Status"
XW 3030 ? "2 = Device ID"
JR 3040 ? "3 = Location"
OW 3050 ? "4 = Days"
SQ 3060 ? "5 = Time ON"
QK 3070 ? "6 = Time OFF"
FZ 3080 ? "7 = Level"
IA 3090 ? "8 = Mode"
VM 3095 ? "---------"
PR 3100 ?"9 = QUIT UPDATE"
OD 3105 ?
CO 3110 ? "Field";:INPUT FIELD
CM 3111 IF FIELD>0 AND FIELD<10 THEN ON F
   IELD GOSUB 3210,3220,3230,3240,3250,32
   60,3270,3280,3290
UJ 3120 ? "↖":GOTO 3020
YK 3210 ? "STATUS (Active, Inactive)";:IN
   PUT STAT$:IF STAT$<>"A" AND STAT$<>"I"
    THEN 3210
AQ 3212 RETURN
IH 3220 ? "Device ID (1-8)";:INPUT DEVID$
   :IF VAL(DEVID$)<1 OR VAL(DEVID$)>8 THE
   N 3220
AT 3222 RETURN
KY 3230 ? "Location";:INPUT LOC$
EX 3235 Z=LEN(LOC$):IF Z<7 THEN LOC$(Z+1,
   Z+1)=" ":GOTO 3235
BQ 3237 RETURN
XR 3240 GOSUB 6200:DAY$=STR$(DAY1)
AZ 3242 RETURN
WN 3250 ? "Time ON (24HR)";:INPUT TON$:IF
    VAL(TON$)<0 OR VAL(TON$)>2400 THEN 32
   50
BC 3252 RETURN
TU 3260 ? "Time OFF (24HR)";:INPUT TOFF$:
   IF VAL(TOFF$)<0 OR VAL(TOFF$)>2400 THE
   N 3260
BF 3262 RETURN
MB 3270 ? "Level(0=High,8=Low)";:INPUT LE
   VEL$:IF VAL(LEVEL$)<0 OR VAL(LEVEL$)>8
    THEN 3270
BI 3272 RETURN
FN 3280 ? "Mode (Normal,Security";:INPUT
   MODE$:IF MODE$<>"N" AND MODE$<>"S" THE
   N 3280
BL 3282 RETURN
ZT 3290 POINT #4,SECT(NREC),CHAR(NREC):GO
   SUB 450:CLOSE #4:POP :RETURN
```

```
DX 3999 REM SHOW ACTIVE RECORDS
RS 4000 GOSUB 550:CLOSE #4:OPEN #4,4,0,RE
   CORD$:GOSUB 300
PF 4010 FOR NREC=1 TO NRECS:GOSUB 500:IF
   STAT$="A" THEN GOSUB 350
AC 4020 NEXT NREC:CLOSE #2:CLOSE #4:GOSUB
    4500:RETURN
NS 4500 ? "PRESS ANY KEY TO CONTINUE";:P
   OKE 764,255
ZC 4510 IF PEEK(764)=255 THEN 4510
BW 4520 POKE 764,255:RETURN
GY 4999 REM SHOW ALL RECORDS
QE 5000 GOSUB 550:CLOSE #4:OPEN #4,4,0,RE
   CORD$:GOSUB 300:FOR NREC=1 TO NRECS:GO
   SUB 500:GOSUB 350
AA 5010 NEXT NREC:CLOSE #2:CLOSE #4:GOSUB
    4500:RETURN
PB 5999 REM WRITE TO INTERFACE
VG 6000 CLOSE #4:OPEN #4,4,0,RECORD$:GOSU
   B 550:GOSUB 650:? "WRITING RECORD":FOR
    NREC=1 TO RECS:GOSUB 500
RF 6010 IF STAT$="I" THEN 6140
UO 6020 ? NREC;:MSG$=SYNC$:X=NREC*16:MSG$
   (17,17)=CHR$(3):IF X>255 THEN X=X-256:
   GOTO 6020
UD 6030 MSG$(18,18)=CHR$(X):MSG$(19,19)=C
   HR$(INT(NREC/16)):MSG$(20,20)=CHR$(8):
   IF MODE$="S" THEN MSG$(20,20)=CHR$(9)
MD 6040 MSG$(21,21)=CHR$(VAL(DAY$))
JU 6050 TIME=VAL(TON$):GOSUB 600:MSG$(22,
   22)=CHR$(HOUR):MSG$(23,23)=CHR$(MINUTE
   )
JB 6060 X=VAL(DEVID$):IF X<9 THEN MSG$(24
   ,24)=CHR$(2^(8-X)):MSG$(25,25)=CHR$(0)

CO 6070 IF X>8 THEN MSG$(24,24)=CHR$(0):M
   SG$(25,25)=CHR$(2^(16-X))
PA 6080 MSG$(26,26)=CHR$(96):MSG$(27,27)=
   CHR$((VAL(LEVEL$)*32)+2)
WL 6090 IF LEVEL$<>"8" THEN MSG$(27,27)=C
   HR$(ASC(MSG$(27,27))+3)
WX 6100 START=20:FINISH=28:GOSUB 250:GOSU
   B 50:GOSUB 100:GOSUB 200:? ".";
GO 6110 MSG$(18,18)=CHR$(ASC(MSG$(18,18))
   +8)
IQ 6120 TIME=VAL(TOFF$):GOSUB 600:MSG$(22
   ,22)=CHR$(HOUR):MSG$(23,23)=CHR$(MINUT
   E)
XC 6130 MSG$(27,27)=CHR$(3):GOSUB 250:GOS
   UB 50:GOSUB 100:GOSUB 200:? ".";
EV 6140 NEXT NREC:? "DONE":CLOSE #2:CLOSE
    #4:RETURN
NE 6200 ? "K            DAYS":RESTORE 6500:B$
   ="-------"
TJ 6210 DAY1=0:? :FOR X=1 TO 7:READ Q$
YK 6220 ? Q$;" (Yes/No)",:INPUT O$
WX 6230 IF  NOT (O$="Y" OR O$="N") THEN ?
    "↑↑";:GOTO 6220
RV 6240 B$(X,X)=CHR$(45-3*(O$="Y")):IF O$
   ="Y" THEN DAY1=DAY1+2^(X-1)
NE 6250 NEXT X:RETURN
XY 6500 DATA Monday,Tuesday,Wednesday,Thu
   rsday,Friday,Saturday,Sunday
ZJ 6600 DAY1=VAL(DAY$):B$="-------"
VR 6610 FOR X=7 TO 1 STEP -1:Y=2^(X-1):IF
    DAY1>=Y THEN DAY1=DAY1-Y:B$(X,X)="*"
ND 6620 NEXT X:RETURN
OQ 7000 ? "QUITTING":END
```

LISTING 2

```
TB 10 REM BSRk, LISTING 2
UT 20 REM WALTER LAZEAR
MC 30 REM 1985,1988 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
KT 70 FN$="D:BSRHAND.OBJ":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "KDisk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
FR 1000 DATA 240
CV 1010 DATA 255255000056075056169080141O
   00003169001141001003169063141002003169
   064141003003169005141006003
EW 1020 DATA 141005003169000141004003141O
   09003141010003141011003169012141008003
   032089228016001096162011189
YB 1030 DATA 0000051570000032020162470320
   89228048006032006005108012000096226002
   227002000056255255000006137
WX 1040 DATA 0061620001890260032010692400
   05232232232208244232142105006189026003
   133205169107157026003232189
YI 1050 DATA 0260031332061690061570260031
   60000162016177205153107006200202208247
   169067141111006169006141112
VF 1060 DATA 0061690141411060060961721060
   06240009185123006206106006160001096138
   072174105006165205157026003
YE 1070 DATA 2321652061570260031041701691
   5516000109600000000000000000000000000
   000000000000000076000000000
WN 1080 DATA 0340830650660460750820830660
   58068034078085082255255226002227002000
   006
```

ST RESOURCE

BSRk ST

Article on page 20

A

```
Rem BSRk!
Rem By Walter Lazear
Rem ST Version by Charles Jackson
Rem (c)1988, Antic Publishing
Rez=Xbios(4)
If Rez=0
  Alert 1,"Does not work | in low rez",1," OK ",B
  End
Endif
Clear
Zp=0
Deftext 2,0,0,20
Cls
' 300->9   600->8    1200->7
Void Xbios(15,8,0,136,-1,-1,-1)
@Open_port
Nrecs=24
```

B

```
Record$="DATA.BSR"
Sync$=String$(16,255)
Dim A$(24)
A$(0)="   Desk   "
A$(1)="   About BSRk!        "
A$(2)="----------------------"
For X=1 To 6
  A$(X+2)=Str$(X)
Next X
A$(9)=""
A$(10)=" Records "
A$(11)=" Update "
A$(12)=" Show Active "
A$(13)=" Show All "
A$(14)=""
A$(15)=" Options "
```

C

```
A$(16)=" Initialize "
A$(17)=" Set Time "
A$(18)=" Load BSR Interface "
A$(19)="----------------------"
A$(20)=" Quit "
A$(21)=""
Menu A$()
On Menu  Gosub Info
Do
  On Menu
Loop
'
Procedure Open_port
  Close #1
  Open "U",#1,"AUX:"
```

continued on next page

D

```
  ' Print #1;Chr$(127)
Return
'
'
Procedure Info
  Value=Menu(0)
  If Value=1
    Alert 1," BSRK! | By Walter Lazear | ST Version by Charles Jackson | (c)1988
  Antic Publishing ",1," OK ",B
    Cls
  Else
    On (Value-10) Gosub Update,Show_active,Show_all,Dummy,Dummy,Initialize,Set_t
ime,Load_bsr,Dummy,Quit
  Endif
  Menu A$()
Return
'
Procedure Initialize
  Alert 2," Initialize | Database? ",1," OK | ABORT ",B
  If B<>2 Then
    @Open_file
    Devid$="0 "
    Loc$="          "
    Ton$="0000"
    Toff$="0000"
    Level$="0"
    Mode$="X"
    Day$="       "
    Stat$="I"
    For N=1 To Nrecs
      Put #4,N
    Next N
    Close #4
    Dun$="    Records | Initialized "
    Mid$(Dun$,2)=Str$(N-1)
    Alert 1,Dun$,1," OK ",B
  Endif
Return
'
Procedure Set_time
  Its_ok=2
  While Its_ok=2
    Cls
    Day=0
    Print At(27,6);"Day of Week:"
    Print At(27,7);"------------"
    @Print_days
    While Not (Day>0 And Day<8 And Day=Int(Day))
      Print At(32,16);"     "
      Print At(29,16);"Day";
      Input Day
    Wend
    Cls
    Print At(27,9);"Current Time:"
    Print At(27,10);"-------------"
    Print At(27,12);"     ";Left$(Time$,5)
    Print At(27,12);"";
    Input X$
    If Len(X$)<1 Then
      X$=Left$(Time$,5)
    Endif
    Hour=Val(Left$(X$,2))
    Minute=Val(Mid$(X$,4,2))
    Cls
    Restore Days
    For N=1 To Day
      Read N$
    Next N
    Alrt$=" Day =           | Time =        "
    Mid$(Alrt$,8,Len(N$))=N$
    Mid$(Alrt$,27,5)=X$
    Alert 2,Alrt$,1," Yes | No ",Its_ok
    Days:
    Data Monday,Tuesday,Wednesday,Thursday,Friday,Saturday,Sunday
  Wend
  Start=18
  Finish=21
  Msg$=String$(Finish,32)
  Mid$(Msg$,1,16)=Sync$
  Mid$(Msg$,17)=Chr$(2)
  Mid$(Msg$,18)=Chr$(Minute)
  Mid$(Msg$,19)=Chr$(Hour)
  Mid$(Msg$,20)=Chr$(2^(Day-1))
```

E

```
  @Checksum
  @Bsr_put
Return
'
Procedure Checksum
  Temp=0
  For N=Start To Finish-1
    Temp=Temp+Asc(Mid$(Msg$,N,1))
    If Temp>255 Then
      Temp=Temp-256
    Endif
  Next N
  Mid$(Msg$,Finish,1)=Chr$(Temp)
Return
'
Procedure Bsr_put                 ! Transmit & Get Ack
  @Open_port
  Local N,Ack,A
  Maxtry=10
  Do
    For N=1 To Len(Msg$)          ! Transmit to BSR
      Print #1;Mid$(Msg$,N,1);
      Nn=Timer
      While Timer<=Nn+5
      Wend
    Next N
    Ack=0
    Do
      Try=0
      While Inp?(1)=0 And Try<Maxtry     ! Keep trying
        Try=Try+1                        ! to get
      Wend                               ! characters
      If Inp?(1)<>0 Then                 ! from BSR
        A=Inp(1)                         ! UNTIL we get
        Ack=Ack+1                        ! six chars.
      Endif                              ! OR until
      Exit If Try>=Maxtry Or Ack=6       ! we're tired of trying
    Loop                                 ! ( Try > Maxtry )
    Exit If Ack=6
  Loop
  While (Inp?(1)<>0)
    A=Inp(1)
  Wend
  Close #1
Return
'
'
Procedure Print_header
  Print "ID  -  St     Dev    Loc          Days        T.On      T.Off    Lvl     Mod
e"
  Print "--------------------------------mtwtfss--------------------------------
--"
Return
'
Procedure Print_line
  If Len(Devid$)+Len(Loc$)+Len(Day$)<>19 Then
    @Fix_lengths
  Endif
  If Rec<10 Then
    Print " ";
  Endif
  Sp$="   "
  Day1$="0000000"
  Temp$=Right$("00000000"+Bin$(Val(Day$)),7)
  For X=1 To 7
    Mid$(Day1$,X,1)=Chr$(45-(Val(Mid$(Temp$,8-X,1))*3))
  Next X
  Print Rec;" -   ";Stat$;Sp$;Devid$;Sp$;Left$(Loc$,7);Sp$;Day1$;Sp$;Ton$;Sp$;
  Print Toff$;Sp$;Level$;Sp$;Mode$
Return
'
Procedure Print_days
  Restore Days
  For X=1 To 7
    Read X$
    Print At(27,7+X);X;" - ";X$
  Next X
Return
'
Procedure Show_active
  Active=1
  @Show_records
Return
```

F

```
'
Procedure Show_all
  Active=0
  @Show_records
Return
'
Procedure Show_records
  @Open_file
  Cls
  Y=0
  @Print_header
  For Rec=1 To Nrecs
    Get #4,Rec
    If (Active=1 And Stat$="A") Or Active=0 Then
      @Print_line
      Y=Y+1
      If Y/14=Int(Y/14) Then
        @Press_cr
        Cls
        @Print_header
      Endif
    Endif
  Next Rec
  Close #4
  If Active=1 And Y=0 Then
    Print "    ( No Active Records! )"
  Endif
  @Press_cr
  Cls
Return
'
Procedure Update
  Local X
  Hidem
  @Open_file
  Do
    Do
      Cls
      Print At(27,10);"Record to update (1-";Nrecs;")";
      Input Rec
      Exit If Rec>0 And Rec<=Nrecs
    Loop
    Do
      Rec=Rec+Nrecs*(Rec>Nrecs)-Nrecs*(Rec<1)
      Get #4,Rec
      Do
        Cls
        @Print_header
        @Print_line
        Restore Actions
        For X=1 To 9
          Read X$
          Print At(27,7+X);X;" - ";X$
        Next X
        Print At(4,24);"'+'  Next record       '-'  Previous record       <cr>
Choose Record"
        Actions:
        Data Status,Device I.D.,Location,Days,Time On,Time Off,Level,Mode,Main M
enu
        Do
          Print At(27,18);"Enter Choice     "
          Print At(40,18);"";
          Input Temp$
          If Temp$="" Then
            Temp$=","
          Endif
          X=Asc(Temp$)
          Exit If (X>42 And X<58) And X<>46 And X<>47
        Loop
        If X>47 Then
          Choice=Val(Temp$)
          If Choice<>9 Then
            On Choice Gosub Up_stat,Up_dev,Up_loc,Up_day,Up_ton,Up_toff,Up_lvl,U
p_mode
          Endif
        Endif
        Exit If Choice=9 Or (X>42 And X<46)
      Loop
      @Fix_lengths
      Put #4,Rec
      If X=43 Then
        Rec=Rec+1
      Endif
      If X=45 Then
```

G

```
        Rec=Rec-1
      Endif
      Exit If Not (X=43 Or X=45)
    Loop
    Exit If Choice=9
  Loop
  Showm
  Cls
Return
'
Procedure Fix_lengths
  Temp$=String$(10,32)
  Rset Temp$=Devid$
  Devid$=Right$(Temp$,2)
  Temp$=String$(10,32)
  Lset Temp$=Loc$
  Loc$=Left$(Temp$,10)
  Temp$=String$(10,32)
  Rset Temp$=Day$
  Day$=Right$(Temp$,7)
Return
'
Procedure Up_stat
  Do
    Cls
    @Print_header
    @Print_line
    Print At(27,18);"Status (A, I)    ";Stat$;"       "
    Print At(40,18);"";
    Input Temp$
    Temp$=Upper$(Temp$)
    If Temp$="" Then
      Temp$=Stat$
    Endif
    Exit If Temp$="A" Or Temp$="I"
  Loop
  Stat$=Temp$
Return
'
Procedure Up_dev
  Do
    Cls
    @Print_header
    @Print_line
    Print At(27,18);"Device (1-8)    ";Devid$;"       "
    Print At(39,18);"";
    Input Temp$
    If Temp$="" Then
      Temp$=Devid$
    Endif
    Exit If Val(Temp$)>0 And Val(Temp$)<9
  Loop
  Devid$=Temp$
Return
'
Procedure Up_loc
  Cls
  @Print_header
  @Print_line
  Print At(27,18);"Location    ";Loc$;"       "
  Print At(35,18);"";
  Input Temp$
  If Temp$="" Then
    Temp$=Loc$
  Endif
  Loc$=Left$(Temp$,10)
Return
'
Procedure Up_day
  Do
    Cls
    @Print_header
    @Print_line
    @Print_days
    Print At(27,15);"------------------"
    Print At(27,16);"8 - Return to menu"
    Eight$=String$(8-Len(Bin$(Val(Day$))),48)+Bin$(Val(Day$))
    For X=2 To 8
      If Mid$(Eight$,10-X,1)="1" Then
        Print At(24,6+X);"=>"
      Endif
    Next X
    Print At(27,19);"Days";
    Input Temp$
```

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H

```
    D=Val(Temp$)
    If D>0 And D<8 Then
      Posn=9-D
      If Mid$(Eight$,Posn,1)="0" Then
        Mid$(Eight$,Posn,1)="1"
      Else
        Mid$(Eight$,Posn,1)="0"
      Endif
      Day$=Str$(Val("&X"+Eight$))
    Endif
    If Temp$="" Then
      D=8
    Endif
    Exit If D=8
  Loop
Return
'
Procedure Up_time
  Do
    Cls
    @Print_header
    @Print_line
    Print At(27,18);X$;Tm$;"        "
    Print At(44,18);"";
    Input Temp$
    If Temp$="" Then
      Temp$=Tm$
    Endif
    Exit If Val(Temp$)<2401 And Val(Right$(Temp$,2))<60 And Len(Temp$)=4
  Loop
  Tm$=Temp$
Return
'
Procedure Up_ton
  Tm$=Ton$
  X$=" Time On (24 hr.)     "
  @Up_time
  Ton$=Tm$
Return
'
Procedure Up_toff
  Tm$=Toff$
  X$="Time Off (24 hr.)     "
  @Up_time
  Toff$=Tm$
Return
'
Procedure Up_lvl
  Do
    Cls
    @Print_header
    @Print_line
    Print At(27,18);"Level (0=Hi, 8=Low)    ";Level$;"        "
    Print At(46,18);"";
    Input Temp$
    If Temp$="" Then
      Temp$=Level$
    Endif
    Exit If Val(Temp$)>=0 And Val(Temp$)<=8
  Loop
  Level$=Temp$
Return
'
Procedure Up_mode
  Do
    Cls
    @Print_header
    @Print_line
    Print At(20,18);"Mode (N)ormal / (S)ecurity      ";Mode$;"      "
    Print At(47,18);"";
    Input Temp$
    Temp$=Upper$(Temp$)
    If Temp$="" Then
      Temp$=Mode$
    Endif
    Exit If Temp$="N" Or Temp$="S"
  Loop
  Mode$=Temp$
Return
'
Procedure Load_bsr
  @Open_file
```

I

```
  Alert 2," Clear ¦ BSR?  ",1," Yes ¦ No ",B
  If B=1 Then
    Hidem
    Msg$=Sync$+Chr$(0)+Chr$(96)
    @Bsr_put
    For Rec=1 To Nrecs
      Get #4,Rec
      If Stat$="A" Then
        Msg$=Sync$
        X=Rec*16
        While X>255
          X=X-256
        Wend
        Msg$=Msg$+Chr$(3)+Chr$(X)+Chr$(Int(Rec/16))+Chr$(8)
        If Mode$="S" Then
          Mid$(Msg$,20,1)=Chr$(9)
        Endif
        Msg$=Msg$+"          "
        Mid$(Msg$,21,1)=Chr$(Val(Day$))
        Mid$(Msg$,22,1)=Chr$(Int(Val(Ton$)/100))
        Mid$(Msg$,23,1)=Chr$(Val(Right$(Ton$,2)))
        X=Val(Devid$)
        If X<9 Then
          Mid$(Msg$,24,1)=Chr$(2^(8-X))
          Mid$(Msg$,25,1)=Chr$(0)
        Else
          Mid$(Msg$,24,1)=Chr$(0)
          Mid$(Msg$,25,1)=Chr$(2^(16-X))
        Endif
        Mid$(Msg$,26,1)=Chr$(96)
        Temp=Val(Level$)*32+2
        If Temp>255 Then
          Temp=Temp-255
        Endif
        Mid$(Msg$,27,1)=Chr$(Temp)
        If Level$<>"8" Then
          Mid$(Msg$,27,1)=Chr$(Asc(Mid$(Msg$,27,1))+3)
        Endif
        Start=20
        Finish=28
        @Checksum
        @Bsr_put
        Temp=Asc(Mid$(Msg$,18,1))+8
        If Temp>255 Then
          Temp=Temp-255
        Endif
        Mid$(Msg$,18,1)=Chr$(Temp)
        Mid$(Msg$,22,1)=Chr$(Int(Val(Toff$)/100))
        Mid$(Msg$,23,1)=Chr$(Val(Right$(Toff$,2)))
        Mid$(Msg$,27,1)=Chr$(3)
        @Checksum
        @Bsr_put
      Endif
      Print At(27,14);"Sending Record #";Rec;"    "
    Next Rec
    Cls
    Showm
  Endif
Return
'
Procedure Open_file
  Close #4
  Open "R",#4,Record$,30
  Field #4,2 As Devid$,10 As Loc$,4 As Ton$,4 As Toff$,1 As Level$,1 As Mode$,7
As Day$,1 As Stat$
Return
'
Procedure Press_cr
  Print At(25,24);"Press any key to continue."
  Temp$=Input$(1)
Return
'
Procedure Dummy
Return
'
Procedure Quit
  Alert 2,"   Are You Sure ¦ You Want To Quit? ",1," Yes ¦ No ",B
  If B=1 Then
    Close
    End
  Endif
Return
'
```

8-BIT PRODUCT REVIEWS

SILICON DREAMS, SIX-SYSTEM BOX

6 SYSTEM BOX

The **6 System Box** is a switchbox for six different operating systems. It works on XL and XE computers. I don't personally know anyone with six OS chips, but I suppose it could happen. These days we have quite a variety to choose from, including Omnimon, Expander, Supermon, Omniview 80, plus the do-it-yourself chips. I myself use the standard Atari OS and UltraSpeed from CSS (reviewed in **Antic**, October 1987), which are controlled by a built-in switch. (See **Antic**, March 1988, for instructions.)

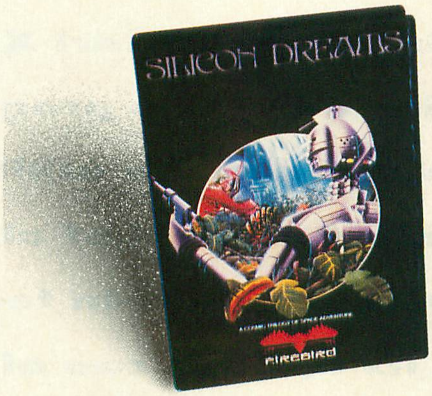
The box is a 5 1/2 X 3 X 1 inch aluminum project box with a rotary switch and six LEDs on top. Inside is a circuit board with sockets for the OS chips and the jumper cable. The construction is not polished, but it worked without any problems.

Installation is not difficult if the OS chip in your computer is socketed. Otherwise, it should be left to an experienced technician. The instructions included with the 6 System Box are rudimentary and somewhat confusing. They suggest drilling a 1/4-inch hole, but they don't say why. They orient the chips in the box by referring to the "writing on the board." Since the board has writing on both edges, that's not much help. It would have been clearer to refer to the two small chips and the wires which are on the edge they mean.

The only other problem is the shortness of the jumper cable—a 6-inch flat ribbon cable that just barely reaches outside the computer box, where it interferes with cartridges (at least on the 130XE). I realize that there are strict length limits before the data gets scrambled, but this is something to consider.

Overall, the 6 System Box works just fine. If you want to use several OS chips, it's the only game in town.—CHARLES CHERRY

$50, XL/XE. Irata Verlag USA, 1272B Potter Drive, Colorado Springs, CO 80909. (303) 596-0135.



Mary Rhomberg Peloquin

SILICON DREAMS

In a departure from Rainbird's high-quality graphic adventures, Pawn and Guild of Thieves, **Silicon Dreams** is a trio of connected adventures with graphics such as you might have expected five years ago. But that's okay because these adventures can stand on their own without hi-res pictures and still be entertaining.

The adventures are called Snowball, Return to Eden and Worm In Paradise, and you can play them in any order you want. However, playing them in correct order lets you carry your score from one adventure to the next and gives you a higher final score as well as a shot at the title of Supreme Adventurer.

In Snowball, you're secret agent Kim Kimberley and you've awakened prematurely from your freezer-coffin on the good ship Snowball, which is on a collision course with the planet Eden. You must get to the main control room and avert disaster. In Return to Eden, you have landed on the planet and must somehow enter the city of Enoch. Worm in Paradise is set 100 years later. You are now Kim Kimberley III, and your goal is to gain power and influence and to save Eden.

None of the adventures is easy. There are robots aboard Snowball that make life very difficult for Kim. On Eden there are native life-forms to deal with. However, I had a good deal of fun playing the role of Kim Kimberley, avoiding robots and "Star Wars" lightning bolts.

The commands in Silicon Dreams are pretty standard. The Help command was not very helpful, and I found myself wishing for the Hint command from The Pawn. Silicon Dreams came with an clear, interesting, humorous instruction manual, as well as a novella called "Eden Song" which really helped set the scene for the adventure.

Silicon Dreams has some things in common with Pawn and Guild of Thieves, both good and bad. The game understands long command sentences, which is handy when you must enter similar commands over and over. Games can be saved to disk, and the RAM SAVE feature lets you save your current position, then reload it later with the RAM RESTORE command.

What I didn't like about Silicon Dreams was the copy-protection. When you load a saved game, you're asked to type a word from a line in "Eden Song" and this really interferes with game play. Also, Silicon Dreams might not work with your drive if you don't have an Atari 1050.—JOHN MANOR

$24.95, 64K disk. 1050 disk drive recommended. Rainbird, P.O. Box 2227, Menlo Park, CA 94026. (415) 940-6087. ■

First Look

Inside the XE Game System

Hardware surprises revealed!

This look inside the Atari XE Game System includes two programs. XEGS Manager is a utility for convenient control of all the Game System's built-in features, but many of its options can also be used on the other Atari XL/XE computers. The second BASIC program is a short "spray-painting" routine for testing light guns.

Atari executives asked the heads of several major toy store chains which product they'd rather sell—the powerful 65XE home computer for about $80, or a fancy new game system for about $150. The answer was, "You can keep the computer, give us that game machine!"

This "game machine" is what we now know as the Atari XEGS, the XL-compatible Extended memory Game System. It's simply an enhanced 65XE in a game machine package. It's also a brilliant idea. The XEGS has been selling out almost as fast as toy stores can get them in.

The XEGS may not seem like such a hot idea to serious Atari computer users. But just think about it. If you were afraid of computers or don't have the foggiest idea what to do with one, you'd have absolutely no interest in an Atari 65XE—even if it *could* play great games. However, you'd probably have no compunction about buying a great video game system, the XEGS, as a new addition to the family entertainment center.

Now we'll take a close technical look at the Atari XEGS. I'll explain how some of its changes in physical design have affected the operating system software. I'll also present the XEGS Manager, a utility for controlling all the built-in features of the XEGS.

BY MATTHEW RATCLIFF

KEYBOARD

The keyboard of the XEGS is detachable. When not connected, the XEGS console looks (and acts) like just a tame little game console. In fact, Missile Command is turned on automatically.

Plug in the keyboard and turn on the machine without an external cartridge, and you're running Atari BASIC, Revision C. The keyboard is virtually identical to the one found on the 130XE. It's mushy, but you can get used to it.

The cable on the XEGS keyboard is quite short. There are two brackets at the top of the keyboard case which lock neatly under the front of the console. The keyboard connector is a standard DB15 female. My first XEGS project was to construct an extension cable for the keyboard. I find it far more comfortable to type for a long time with the keyboard on my lap than on a desk.

Inside the XEGS keyboard case is a small circuit board. On it you will find some resistors, capacitors and two CD4051 chips, which decode the keypresses and send an internal keycode back to the POKEY chip in the XEGS. I already made an adapter cable to connect the XEGS keyboard to the 800XL joystick ports.

So far my efforts at "scanning" the external keyboard manually have failed—the POKEY chip does this automatically in the XEGS—but I hope to bring you a laptop keyboard utility program that lets you use the XEGS keyboard on any other Atari computer with minimal hardware hacking—just a cable.

MEMORY

There are only two RAM chips in the XEGS, which deliver a full 64K of RAM. They're Texas Instruments TMS4464-12 64K-by-4-bit chips. In the XL/XE computers, eight 64K-by-1-bit chips are used. Fewer chips improves reliability and generally reduces the cost of producing the machine. In fact, the XEGS contains a total of only 17 chips.

ICD has indicated that it is working on a RAM upgrade kit for the XEGS similar to the RAMBO XL for the Atari 800XL. I've already received a 128K RAM upgrade kit from Innovative Concepts for my XEGS, making it fully 130XE-compatible. See review on this page.

Using higher-density ROM chips, the updated XEGS operating system had 8K of spare ROM. Atari decided to use that extra ROM for the Missile Command game, which is bank-switched in and out much like how Atari BASIC is toggled on and off. Missile Command can be enabled by holding the [SELECT] key during power-up when a keyboard is connected. When in BASIC, you can enter BYE to get to the Self Test. From there, pressing [RESET] while holding the [SELECT] sends control to Missile Command. Press [RESET] in Missile Command, while holding [OPTION], to return to the Self Test. Press [RESET] by itself to return to BASIC. (Reboot if a disk drive is connected.)

LIGHT GUN

The XEGS comes with a light gun called the XG-1. The

continued on next page

XE-GM1 UPGRADE

The **RAMdrive + XE-GM1** from Innovative Concepts is a RAM upgrade kit for the Atari XE Game System which converts this "game machine" into a powerful 128K computer that's 100% compatible with the Atari 130XE. Having 128K memory gives you access to such goodies as the RAM-resident spelling checker of Paper Clip 2.0, BASIC XE, RAMdisk support and any other software that can use the 130XE's extended RAM.

The XE-GM1 kit comes with a pair of 41464 RAM chips for a full 64K, a custom IC chip, two sockets for the RAM chips, wire and a few resistors. Five pages of instructions are included as well as a useful hand-drawn schematic.

Installation requires 26 steps. They're well-documented, and I had no trouble making the upgrade—the entire installation and checkout process took about three hours.

But before you run out to buy this nifty upgrade, I must warn you that this project requires some *real* hardware hacking experience. Although this upgrade has only three chips, it is still a delicate process. And of course, like any hardware modification, it will void whatever Atari warranty you may have left.

The most critical step in the XE-GM1 upgrade is the removal of the original RAM chips. These must be desoldered and removed without any heat damage to the chips or circuit board. I've burned chips to death while removing them, so I was very patient during this process and I never let the chips become uncomfortably warm to the touch. After the chips were out, I carefully cleaned out and inspected the pads.

After soldering in the new RAM sockets, I did *not* plunge into the next process, piggybacking RAM chips. I put the original RAMs back in the computer and hooked it up, making sure not to short out anything or zap myself. I ran the self test and the original RAMs checked out. Then I shut off the XE Game System and repeated the test process on the new RAMs from the kit. They too checked out. I *highly* recommend these steps, in order to prevent performing an upgrade with bad RAMs.

Next the RAMs must be stacked, with pin 16 of the top chips bent out, and soldered together. Here a light, quick touch of the solder iron is recommended. Patience and plenty of cooling

continued on next page

time between each pin are important.

Next came the custom IC, a 16-pin chip. All its legs were bent out except 8 and 16 (ground and +5 volts, respectively). This chip is soldered piggyback to U13 on the XE Game System. It looks like a squashed bug there—not pretty, but functional.

Some resistors had to be wired to some pins on the Atari's PIA chip. Another resistor had to be wired between pin 16 of the RAM chips and one pin of the custom IC. After that, it was simply a matter of stringing wire from the custom IC to the proper pins on the PIA, ANTIC, RAM and FREDDIE chips. Two pins of the FREDDIE also had to be desoldered and pulled up. I took my time, double-checking all connections and counting pin numbers three or four times before making a connection. You want this installation to work the *first* time.

Each time I piggybacked chips, I did something not mentioned in the instructions. I separated the upper and lower chips very slightly—1/32 to 1/16 of an inch. This helps the chips run cooler and last longer.

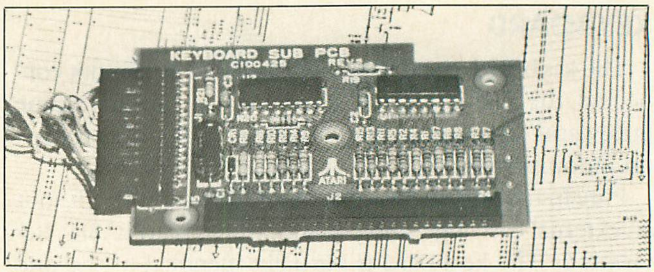
Also, it took me only a couple of connections with the wire included with the kit to realize it wasn't suited for the job. The insulation had a very low melting point and it tended to shrink back or melt off the wire completely during the soldering process. To prevent the risk of shorting, I switched to my own Kynar wire from Radio Shack which has a teflon insulation that withstands soldering heat.

Before putting the computer back togther, I hooked up the motherboard and ran some preliminary checks. The upgrade ran just fine, so I buttoned up the system and ran memory tests for over 24 hours without a glitch.

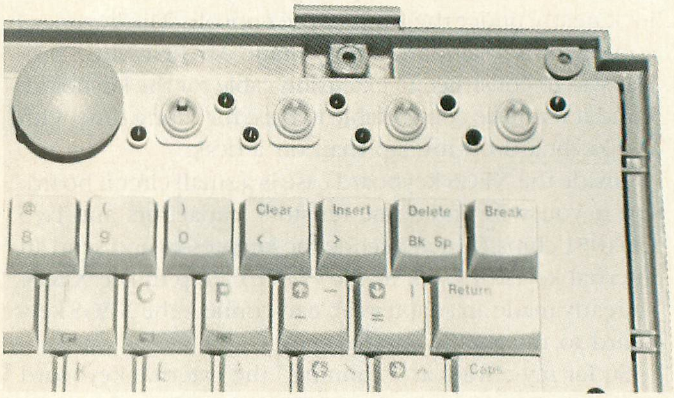
The package includes Atari DOS 2.5 on disk, complete with utilities and RAMdisk software. On the flip side is a complete RAM test by Glenn Smith of Radon Software, which detects all available RAM banks (including the 256K in my upgraded 800XL) and tests them.

If you want the classy package of the XE Game System and all the RAM power of a 130XE, then I highly recommend the XE-GM1 from Innovative Concepts. If you aren't a hardware hacking veteran, I suggest that you seek the assistance of a guru in your users group or have an Atari service center install it for you. The installation fee will be significantly less than repair charges for burnt etch and fiberglass.—MATT RATCLIFF ■

$34.95. Innovative Concepts, 31172 Shawn Drive, Warren, MI 48093. (313) 293-0730



This is the small printed circuit board inside the XEGS detachable keyboard. It is sitting on a schematic of the old Atari 800, adjacent to virtually identical keyboard circuitry.



There's room at the top of this keyboard for the START, SELECT, OPTION and RESET keys. But they are in the console. A dead giveaway that this keyboard is identical to that of the 65XE.

Nintendo light gun is more accurate—if something is lined up in its sights, that's exactly what you hit. Not so with the XG-1. You'll find that it often shoots to the left or right, depending on the software you're running.

The XG-1 is simply a specialized light pen. Light pen support was built into the earliest Atari computers, but it never really caught on. In the shape of a gun, the light pen has brought a whole new dimension to video games applications. The light pen horizontal position, LPENH, can be PEEKed at memory location 564, and the vertical position, LPENV, is found at location 565.

Light gun values range from 0 to 227. You will notice that your horizontal readings are quite odd. Try the sample program below, and notice how the GUN-X readings vary as you sweep the gun across the screen, left to right.

```
10 LPENH=564
20 LPENV=565
30 GRAPHICS 0:POKE 752,1:POKE 712,15
40 POS. 0,0:FOR I=1 TO 4:? "0123456789";:NEXT I
50 ? "GUN-X=";PEEK(LPENH);" "
60 ? "GUN-Y=";PEEK(LPENV);" "
70 ? "TRIGR=";STICK(0)
80 GOTO 50
```

Point the gun to the far left of the display and GUN-X will read about 88. Moving from left to right, the reading will reach 227 at about column 34. Then suddenly it drops to 0 and increases again to about 30 at column 39. This offset is due to the delay between when a pixel is actually



Mary Rhomberg Peloquin

lit on the display and when the information is relayed from the light gun sensor to the POKEY chip, which latches an internal scan counter for the pen reading.

The old Atari 400/800 Hardware Technical Reference recommends a "calibration procedure" each time the light pen is used, so that the software can compensate for this offset. A calibration procedure would improve the accuracy of the light gun. But Atari's Bug Hunt and Barnyard Blaster games both have "hard-coded" values—different ones in fact. While Bug Hunt appears to shoot slightly to the left, Barnyard Blaster seems to shoot a tad to the right. The Y readings for the gun are more predictable, equal to half the number of the currently displayed scan line. You'll notice with your test program that GUN-Y only varies from about 17 to 115. Note that you get much better performance out of the light gun near the screen edges, when you use a light colored border achieved with the POKE 712,15 above.

You'll need to perform some computations to adjust for these unusual readings, to convert gun coordinates to screen coordinates. Different conversion factors are required for each graphics mode (and P/M graphics).

The gun won't return reliable readings at all if the intensity of the display is too low. That's why the screens for Atari light gun games may be brighter than usual. The game screen will momentarily flash white whenever you press the trigger in either Bug Hunt or Barnyard Blaster. While the screen is all white, the software reads the gun position and provides the most accurate values.

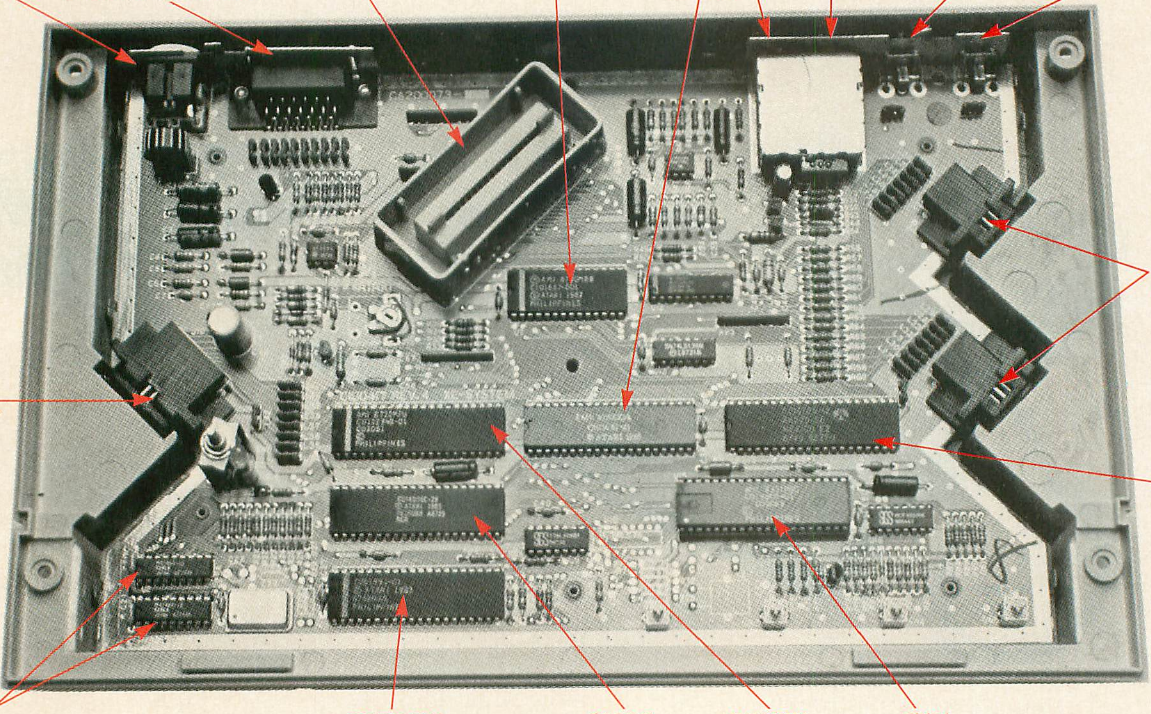
Listing 1, DRAWGUN.BAS, presents a Graphics "spray-painting" program for testing the XG-1. Dots are drawn whenever the fire button is pressed. Try holding the gun very steady to see how much jitter you get in the readings. These inaccuracies are reflected in your games as well. I feel that, at the higher levels of play, Bug Hunt and Barnyard Blaster both require more accuracy for continued play than the XG-1 can deliver.

Atari has informed me, however, that the XG-1 and a revised Bug Hunt will be released as a separate package. If you're tired of waiting, you may wish to pick up the Sega light gun, for about $25 (when on sale) and modify it for the Atari.

To modify the Sega gun for the Atari, you'll have to cut off the incompatible connector. The wires must be stripped back and soldered into an Atari joystick connector as follows:

SEGA GUN	ATARI JOYSTICK PORT
Blue wire	Pin 1 stick FWD
Gray wire	Pin 6 trigger
Green wire	Pin 7 +5 volts
Black wire	Pin 8 Ground

Because of the close-fitting connections for the XEGS ports, don't wire in a DB9 female connector that has "ears." Most joysticks don't have wires for unused signals, so cutting up an old joystick cable may not work. Specifically, an Atari joystick does not need the +5 volts, so there isn't likely to be a wire connected to Pin 7. However, you can find joystick extension cables at Radio Shack, which have all nine pins wired from male to female. **Antic** disclaims responsibility for any damages that might occur during improper implementaton of this, or any, hardware



modification project we publish.

Once it's all hooked up, you'll notice that gun fires when you *release* the trigger, which is annoying. The Sega trigger wiring is the opposite of what the Atari light gun uses. To rewire the trigger switch, remove the five screws (one is under the Sega logo on the side). Find the trigger micro switch with three connections. Wire to the normally *closed* contacts instead of normally open.

XEGS MANAGER

Listing 2, XEGSMGR.BAS, is a BASIC loader that lets you create a machine language file on disk. Type it in, check it with TYPO II and SAVE a copy before you RUN it. The file XEGSMGR.EXE can then be loaded from DOS or renamed AUTORUN.SYS. Many of the program's features also can be applied to Atari XL/XE computers.

Antic Disk owners will also find the MAC/65 assembly language source code for Listing 2 on this month's disk, under the filenames XEGSMGR.M65 and RAMOSDAT.M65. If you wish to recompile this code, you'll need the MAC/65 files IOMAC.LIB and SYSEQU.M65.

Normally you must press the [OPTION] key at boot time to disable BASIC and go directly to DOS. And once BASIC is off, the only way to get it back on is rebooting. Option 1 of XEGS Manager is to turn internal BASIC on, and option 2 turns it off.

Disabling BASIC while in DOS provides an additional 8K buffer for file copying. This is an important feature for owners of a single drive. Quite often, BASIC must be off before certain machine language files can be loaded and run. The XEGS Manager eliminates the need of rebooting every time that BASIC must be re-enabled.

SELF TEST

The XEGS Self Test lets you test the computer's sound registers, keyboard, and memory. However, BASIC is not turned off automatically when Self Test is run from the BYE command. This means that the 8K of RAM under BASIC isn't tested. Option 3 from the XEGS Manager lets you run the Self Test with BASIC off, so that the maximum amount of RAM is tested.

RAM OS

All of the operating system of the XEGS (and 64K or more XL/XE machines) is "shadowed" by RAM. Some disk operating systems, such as DOS XL and SpartaDOS, use hidden RAM for many of their own functions. However, if you're using Atari DOS 2.0 or 2.5, then there is a lot of RAM going to waste in your machine.

Option 4 of the XEGS Manager lets you enable a RAM-based operating system so you can do some real "hacking" —disassembling and adjusting parts of the XEGS operating system to suit your needs. Even if you're not a hacker, there are other practical features of a RAM OS.

Once the RAM operating system is enabled, you are prompted for a disk drive number, 1-8 or 0 to exit. A custom font can be loaded in place of the standard one in the OS ROMs: enter the drive number to display a directory of all .FNT files. Then enter the name of the font file to load, or simply press [RETURN] to change drives or disks.

You needn't enter the drive specifier or extender—the

XEGS Manager will take care of that for you. The font file is loaded into memory at $E000 (57344). Then you're prompted to (1) repeat the process and try a different font, or (2) exit. (You will find some font files on this month's disk as a bonus.)

Your RAM OS and font are reset-proof, too. Pressing the [RESET] key causes the XEGS to re-enable the ROM-based operating system, but a special handler in Page 6 of memory takes control after that. The handler converts the ROM back to RAM, recopying all the essential parts of the ROM OS, in case part of this RAM area got clobbered while you were hacking about. The handler does *not* recopy the ROM OS font, however, leaving yours intact. Should your RAM font get garbled somehow, press [RESET] while holding the [START] console key to return to the ROM font. Each time that [RESET] is pressed, a RAM OS prompt is displayed at the top of the screen as a reminder.

If you enable a RAM OS while running SpartaDOS, the XEGS Manager detects it and prevents the installation and subsequent system crash. The Manager does *not* automatically detect any other DOS, such as DOS XL, which may crash when a RAM OS is enabled.

MISSILE COMMAND

Again, if you turn on your XEGS without the keyboard connected (or hold down the [SELECT] key at power-up), Missile Command fires up automatically. Option 6 of the XEGS Manager will get you into Missile Command without having to mess with any console keys or power switches.

CONCLUSIONS

The XEGS is a superb little computer. It's still a hacker's system too. I've found that the PBI ROM routines are intact, which means that you should be able to hack in your own custom PBI connector and use the XEGS with ICD's MIO board, if you're a real solder jockey.

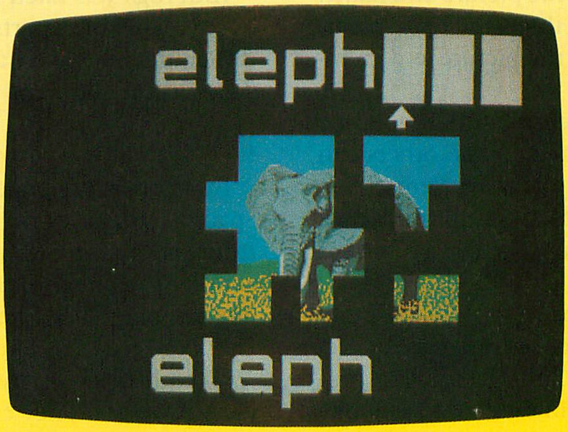
The XEGS has brought along a lot of new software too, something Atari was counting on. Much of it includes repackaged classics or cartridge conversions from disk-based software, but there are a few new titles such as Battle Zone. Atari's new 256K bank-switch cartridges are not likely to be pirated. This means that the piracy threat for 8-bit Atari software should be minimal, thus attracting more new software vendors from the traditional Apple and Commodore markets.

If Atari can provide a responsive cartridge production service for third party software vendors (something the old Atari *never* would have done), then we're likely to see the software base for the 8-bit Ataris grow with the popularity of the game industry, which is definitely on the rise again. ■

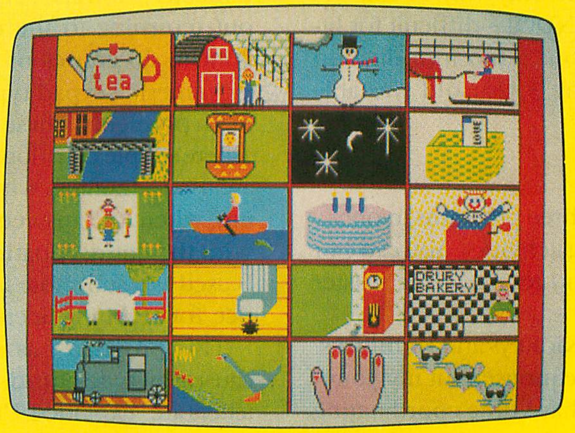
Matt Ratcliff is a St. Louis aerospace engineer and a longtime **Antic** *contributing writer.*

Listing on page 33

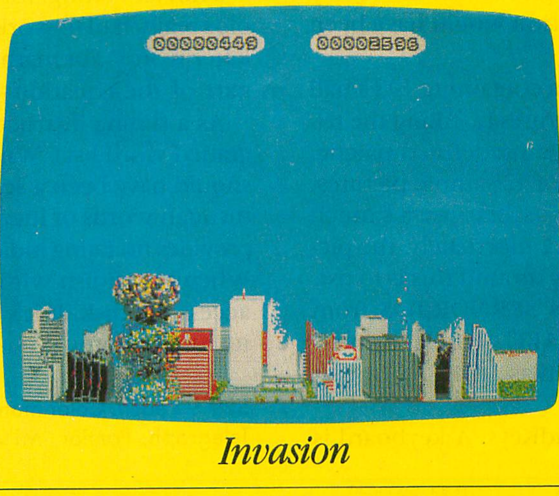
ST Educational Software



ABZoo



Preschool KidProgs



Invasion

Reviewed by Jim Pierson-Perry

ABZoo and ***PreSchool KidProgs*** are for children aged 3 to 6. ***Invasion*** provides typing practice for ages 6 to adult. Fortunately I was able to get evaluation help from my four daughters, aged 3 to 8. These three MichTron programs cost $29.95 apiece, require a color monitor and are not copy protected.

continued on next page

ABZOO

ABZoo is aimed at introducing children to the computer keyboard and developing letter recognition skills. Three levels of work are provided, each increasingly harder. For the beginner, the letters of the keyboard are displayed onscreen. Pressing a key displays a picture of an animal whose name begins with that letter.

At the next level, the computer randomly picks a picture and displays it with the animal's name. The picture disappears, and the child must type the letters of the name as it was displayed on the screen. At each correct keypress, pieces of the picture appear—it's like doing a jigsaw puzzle. The highest level briefly shows the picture and name, then the child must correctly type the name from memory. The [HELP] key will redisplay the picture as a memory jogger.

Levels 1 and 2 are fine for preschool children. Some will use it just to look at the pictures, while others can begin to learn the keyboard. Level 3 is more demanding of memorization skills and not necessarily appropriate for children at this age level. A nice touch is the musical cues that reinforce correct responses.

Two different sets of pictures are provided—realistic and cartoon-style. There are some differences between the picture sets, which were all done with DEGAS Elite. The program and both picture sets can be installed on a double-sided disk.

One minor complaint is that the only way to exit the program is by pressing [SHIFT] [UNDO]—difficult for little ones to remember. But ABZoo is a fun introduction to learning the keyboard. Even my 3 year old was able to use it without supervision.

PRESCHOOL KIDPROGS

PreSchool KidProgs is actually three programs in one—graphics, music and puzzle-solving activities. You can exit an activity whenever you want and return to the master menu.

The menu items are KidGrid+, KidKeys and KidBlocks. All program operations require the mouse. But my youngest children, ages 3 and 5, had a hard time coordinating mouse movement, although they understood exactly what they were trying to do with the program. With time they improved, but I think a joystick option would have been better for small hands.

KidGrid+ displays a drawing area containing 192 small triangles. The object is to create pictures by filling the triangles with any of 12 colors from a predefined palette. The program provides a starter set of 12 sample pictures. This is a good format for young artists, because it's much easier to fill in than draw freehand. Unfortuately, the pictures cannot be saved to disk. A way around this is to use a public domain program, such as SCRNDR.TOS from CompuServe, that redefines the [ALT] [HELP] printer-dump sequence to saving the screen as a DEGAS-format picture file.

Making music is the object of KidKeys. A keyboard is displayed on screen, and notes are played through the internal speaker as they are selected with the mouse. Two different types of sounds, piano and organ, are available. There are 20 pre-recorded nursery rhymes, selected from a pictorial menu, and sing-along lyrics are provided in the manual.

The final activity is a 16-piece jigsaw puzzle in KidBlocks. Each piece can show one of six different faces, a different face for each of six possible puzzles. Pointing at a piece and clicking changes the face. The child goes through each piece, changing them as necessary, until an entire puzzle is completed, which is then rewarded by a short piece of music or animation.

KidProgs was rated far and away the best of the three by my panel of experts. Aside from the mouse-handling difficulties, they were all able to use the program without supervision and kept coming back for more.

INVASION

Invasion is designed as a typing drill instructor *a la* Space Invaders. Words from a list appear and drop down from the sky, imperiling the city below. The only defense is to type each word accurately and blow it up before it hits ground. There are three rounds of increasing difficulty and three different speed levels.

Word lists are easily created and edited with an auxiliary program. They can be tailored to use with spelling lessons or typing instruction word lists (of increasing difficulty). You can't change word lists during a game without returning to the desktop and restarting. A list can contain 20 entries of 29 characters each.

Numeric keypad typing skills are developed by typing math problems. These use math lists, similar to word lists, where simple equations are entered. Two math play modes are used—training, where the answers are shown, and testing, where the answers are hidden by question marks. To win, the entire equation must be typed. The [Enter] key is used as a substitute for the [=] key, a questionable practice for teaching accuracy.

This program has several problems. One is a delay caused by type-ahead: you can easily type faster than the letters are "exploded." This makes it hard to see and correct typing errors. Also, the program is simply too fast, even at a novice setting, for many beginners. My 7- and 8-year-olds really had to work to get even simple three- and four-letter words. For math problems, it's hard enough to type part of the equation—let alone have time to solve it.

As a typing instructor, Invasion suffers from a lack of graded word lists. While you can create your own, there should have been a set of lists ranging from single letters through words of increasing difficulty. The program also provides no rating indicators of typing speed and accuracy. When you finish with a list, the program always tries to access the disk. If it's protected, you get two bombs and its restart time. ■

$29.95 each. Color monitor required. MichTron Inc., 576 South Telegraph, Pontiac, MI 48053. (313) 334-5700.

ST New Products

By GREGG PEARLMAN, *Antic Assistant Editor*

PRODIGY

Prodigy, which **Antic** saw demonstrated at the West Coast Computer Faire in April, 1988, may well revolutionize online information gathering—and especially online shopping. Trintex, along with IBM and Sears, Roebuck and Co., offers a truly interactive service featuring colorful graphics screens and easy menus—all for *$9.95*. No, not $9.95 per hour, $9.95 per *month*. How? That's where the "shopping" part comes in. Across the bottom of each screen is a text "commercial" from which you can buy merchandise directly.

The main drawback to Prodigy is that it's not available for the ST—yet. **Antic** has run Prodigy's IBM demonstration software on an ST using PC-Ditto, but it's mighty slow.

Prodigy *might* develop an ST-specific version of the software needed to access the service. With its graphics capabilities, the ST should be a natural for Prodigy. If you agree, you might give Trintex a gentle nudge via a tastefully written letter.

Trintex, 445 Hamilton Avenue, White Plains, NY 10601. (914) 993-8800.

AUTOGRAPHS, ANYONE?

At Spectrum Holobyte's booth at the West Coast Computer Faire, **Dondra**'s heroine, Terna, the Polythene Pam of the graphics-adventure game set, posed for pictures and signed autographs. At home in futuristic Dondra, she's the last of the Tellasien race. Dondra is full of colorful cartoon-style graphics. As Terna, you'll fight Mutoids and encounter a strangely attractive lioness, but you'll have to keep an eye out for a wildebeest with a grudge.

$39.95. Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501. (415) 522-0107.

SQL

The **SQL Database Add-On** for LDW BASIC is a relational system for the ST. It extends the instruction set of LDW BASIC by adding commands to store, retrieve and modify information saved in a set of databases. No special knowledge of database programming is needed—anyway, the 36-page manual includes a large tutorial.

$30. Regent Software, 7131 Owensmouth #45A, Canoga Park, CA 91303. (818) 882-2800.

BECKEMEYER PAIR

SDS (Software Development System) lets you develop sophisticated applications that take advantage of the multitasking features of Beckemeyer's MT C-Shell. Written in Mark Williams C, SDS includes several Unix-compatible routines to help in porting Unix applications to MT C-Shell, and the package also provides sample programs. SDS costs $59.95, but registered MT C-Shell owners can get it for $49.95.

MT C-Shell UUCP (Unix to Unix Copy) is a file and electronic mail facility that can talk to any Unix or UUCP-compatible system. Once you've set it up, you can send and receive electronic mail, telexes, news and data files of all kinds. UUCP costs $49.95, but registered MT C-Shell owners can get it for $35.

Beckemeyer Development Tools, 478 Santa Clara Avenue, Oakland, CA 94610. (415) 452-1129.

PLATOON

Based on the Oscar-winning film, **Platoon** is a realistic simulation of the war in Vietnam—and here, just as in the movie, there's no winner.

In Platoon, you'll find yourself leading your five cohorts through six increasingly hazardous situations. First you traverse a jungle to blow up a bridge, keeping an eye out for booby traps and snipers. Searching a village for a hidden trap door is the next challenge. Then you must navigate through underground tunnels, shooting the guerrilla fighters on sight.

You'll also find yourself in a bunker night-fight, surrounded by the enemy. Your platoon must find a safe jungle foxhole before a napalm airstrike. Finally, the platoon must use grenades to take out a sergeant who betrayed them.

The factors of your condition include morale, hits (the number of "strikes" you can sustain before you become "retired in action"), ammunition and score.

$44.95. Data East USA, Inc., 470 Needles Drive, San Jose, CA 95112. (408) 286-7074.

QUIZMASTER ST

EZuse has ported its popular and inexpensive 8-bit Quiz Master Construction Set over to the Atari ST. The new **Quiz Master Construction Set ST** combines all of the standalone 8-bit programs into one ST program that allows multiple choice answers, prints a score at the end of the game and has four ways to print the quiz.

$11.50. EZuse Software, 2850 Enea Way, Antioch, CA 94509. (415) 754-6026.

JUGGLER REDUX

Juggler II partitions the memory of your ST into two, four or eight equal sections, each of which acts as if it were the only one in the computer. Pushing [SHIFT] [ALTERNATE] suspends operations in the active partition before moving to the next one, so you can load and swap programs between partitions—you could even juggle, say, seven GEM programs and one non-GEM program. Owners of the original Juggler can receive free upgrades.

$49.95. MichTron, 576 S. Telegraph, Pontiac, MI 48053. (313) 334-5700.

CUIDADO! LLAMAS!

Artworx' **Spanish Verb Tutor** helps both the beginning student and the fluent Spanish speaker handle all Spanish verbs, including all modes, tenses and persons of all regular verbs and some irregular verbs. Each lesson is followed by a practice quiz. Spanish Verb Tutor furnishes the exact forms of over 12,000 verbs—giving you more than a million Spanish words.

$39.95. Artworx Software, 1844 Penfield Road, Penfield, NY 14526. (800) 828-6573, (716)385-6120.

QUESTRON II

You have the dubious fortune of being in possession of the Evil Book of Magic, which you stole from Mantor the nut in Questron, and which is SO evil that it can't be destroyed in the way you might normally destroy books. Now in **Questron II** you must go back in time to Landor to ensure that the book is never created. You must use weapons and spells (such as sonic whine and time sap) to defeat the various creatures you'll encounter.

$49.95. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

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ST Games Gallery

Gunship, Gone Fishin', GFL Football, Alien Fires

GFL CHAMPIONSHIP FOOTBALL

GFL Championship Football is exciting and adds a few new tricks. Your viewpoint is from the receiver's or runner's position on the field. This gets you involved in ways that a view from above the field can't. You hear your footsteps as you run and you almost feel the impact when you get tackled.

To start playing GFL, you and another player select your teams from four divisions—North, South, East and West. In a one-player game, you select the computer's team too. Each position is rated from 1 to 3. Use the joystick to call plays from an offensive or defensive play list. You also control your movements with the joystick.

Passing and running take practice. On offense you can pass short or long, or run up the middle or down the sidelines. On defense you can blitz or look for a passing play. Guess wrong and your opponent will gain big. Guess correctly, and you could throw him for a loss.

On passing plays, you move the receiver downfield after the snap. You must take the exact number of steps in the right directions to catch the ball. This is as hard as it sounds, but I managed to get the hang of it after a couple of games.

Special teams are important. You can block field goals by maneuvering a defensive player in front of the kicker and jiggling the joystick. During field goal attempts, if you kick too soon, the ball will go wide—too late, and it'll be blocked. When running the ball back after a punt, you can outrun or stiff-arm tacklers. My team got creamed a few times because the computer is pretty good at running back punts.

GFL comes with clear instructions, helpful play diagrams and a glossary of football terms. It lacks interesting sound effects, however, and some of the graphics could be better.

But it's fun, especially for football fans who are also computer enthusiasts. It's not a game for statistics freaks. GFL just gives you a grunting, sweaty, nitty-gritty real-life football game. Learning the plays is a little hard, but the fun of breaking tackles or crushing an opponent's offensive drive makes it all worthwhile.—JOHN MANOR

$39.95, color and joystick required. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. (415) 329-0880.

GONE FISH'N

Gone Fish'n mimics every nuance of bass fishing. In your quest to catch the most and the biggest fish, your first decision is when to try your luck. Do you wait until Saturday, when weather conditions might not be prime, or do you skip work and set



sail on Friday, a perfect day? Unfortunately, you're not on salary so a skipped workday will cost you. And you'll need plenty of cash to afford all the state-of-the-art fishing paraphernalia on your wish list. Start with a simple lure, then choose the lake. Navigate to a prime location, attach your lure and let loose your line. And wait.

Unfortunately, just like real fishing, I find this expedition boring. I just lack the patience to wait for a hungry fish to make a mistake. I want to pursue my adversary actively, not to outwait him. But the game really does simulate every aspect of fishing, so I'm sure some fishing enthusiasts will love it. Capable graphics heighten the realism of the experience. You'll actually see the stupid, starving bass dash toward your lure and you'll actually jerk back on the rod to set the hook (although I felt that the control interface left a lot to be desired). The jerky, mouse-controlled rod quickly became annoying, and a good read through the lengthy manual will also be necessary to master this non-intuitive game.

All in all, Gone Fish'n does just what it sets out to do—except lie about the size of your catch. But don't despair, as there's still latitude to fib about the one that got away.—STEVE PANAK

$44.95, color. Electronic Arts (Interstel), 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7991.

GUNSHIP

The AH-64A Apache is the hottest helicopter in the sky— with a top speed of 224 mph, a maximum climbing rate of 2,880 feet per minute and a ceiling of 20,500 feet. In **Gunship** your goal is to maneuver the Apache through a series of military operations, usually seeking to take out the primary target, an enemy installation or base. You select mission parameters, weapons, weather conditions, day or night and difficulty level. After successful missions you'll be promoted and receive medals and commendations.

The Apache is controlled with the keyboard and either a mouse or joystick. I recommend a joystick. A keyboard overlay noting each key's functions is included with the package.

What I like about Gunship is that you can fly the Apache in Easy or Realistic mode. In Easy mode, movements such as pitch, roll and altitude changes don't effect lift, but in Realistic mode, they do. So if you move from a hover to forward flight, keep



on your toes, or else you'll lose altitude.

Once you've mastered flight, the next goal is avoid getting shot down. The Apache uses a TADS (Target Acquisiton & Designation System). The pilot and gunner wear special helmets that track their viewpoints in three dimensions—when a crewman looks at a target, the TADS "knows" where he's looking. When it locks onto a target, it will stay locked until the target is neutralized or a new one is selected.

When a target is located, its image appears on a video monitor showing distance, zoom factor and the display functions in daylight and darkness. In combat, you just *look* at a target, select a weapon and fire.

Of the four offensive weapons, the chain gun works best against ground troops and slow-flying aircraft. The Hellfire missile is for knocking out enemy tanks, using a laser to locate its target and firing a beam that "breaks up" when it bumps into a tank—the Hellfire "sees" that breakup and homes in. The unguided FFAR rocket works best against ground troops and installations, and the sole purpose of the AIM-9L Sidewinder missile, an infrared-homing air-to-air missile, is to take down enemy aircraft.

If an incoming missile is radar-homing, the "R" light above your Apache's radar screen will flash. If it's a heat-seeker, the "I" light will flash. You'll want to choose either the radar or infrared jammers and change course. If you still can't lose the missile, then chaff or a flare should be deployed.

The tougher the mission, the better the enemy's skill and weapons. Sometimes deploying a decoy or jamming still won't shake a missile, so you have to take evasive action. This isn't easy in a helicopter.

The Gunship manual is the best game manual I've read—a piece of art. It includes detailed gameplay information, general helicopter information, weapons and tactics, Apache stats and complete mission briefings. It's clearly organized, and the learning process is a joy.

Gunship is the hottest helicopter simulation, period. Flying the Apache takes a bit if getting used to, but with practice you will be able to strafe those enemy fortifications with the best of them.—SCOT TUMLIN

$49.95, color. MicroProse Simulation Software, 120 Lakefront Drive, Hunt Valley, MD 21030. (301) 771-1151.

ALIEN FIRES—2199 A.D.

The superb cover art of **Alien Fires—2199 A.D.** sparked my imagination. And my expectation was fueled by the sight of not one, not two, but *three* disks holding worlds beyond my imagination. Unfortunately, the fire was extinguished soon after I booted up.

Your goal in Alien Fires is to travel to a planet called Galaxy's End and destroy a time machine created by Dr. Kurtz, a benevolent genius driven insane by his own intellect. Skill points are assigned to each of seven attributes to determine your Time Lord's overall ability. As in most games of the Dungeon & Dragons genre, these values increase and decrease based on your performance.

Probably my biggest disappointment resulted from the lackluster graphics. The ST *is* the premier graphics-oriented personal computer,



but no one seems to have mentioned this to Paragon. The vector graphic corridors quickly become boring, and the creatures you meet, while colorful and interesting at times, become a dull gray when superimposed on the corridor.

The screen photos on the rear of the box are quite different from what you'll see at home. Movement through the corridors is annoyingly jerky and few options are open to you. While I'm sure that the three disks contained tons of data for generating limitless worlds and creatures, I felt little compulsion to explore. It's too bad.—STEVE PANAK

$39.95. Electronic Arts (Paragon), 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7991.

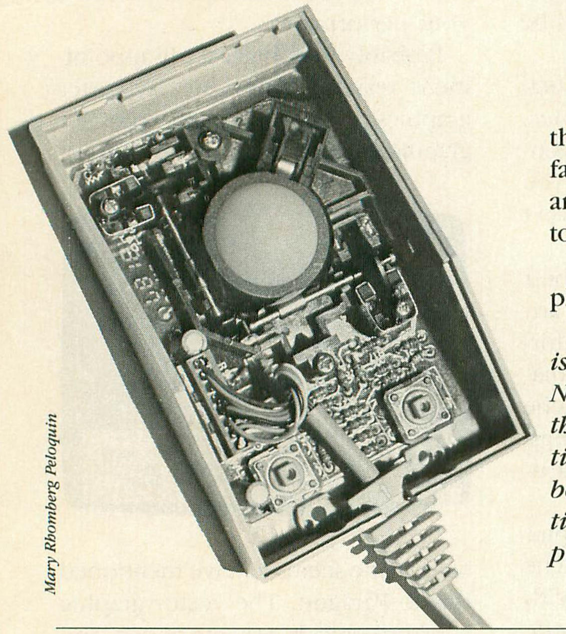
■

This month's ST Resource type-in software is BSRk, a flashy GFA BASIC version of our X-10 home controller program. You'll find the ST instructions in a special section of the 8-bit BSRk article in this issue.

By PATRICK MCSHANE, *PCS School*

Prolong the Life of Your ST Mouse

One school's maintenance method.



Mary Rhomberg Peloquin

The most vulnerable piece of hardware on the ST is the mouse. At PCS computer school we have kept ours alive for over a year—through heavy use by 152 kids—by performing the following maintenance procedures:

1. Always use a mouse pad. This keeps the ball from picking up deposits of oil and dirt that stick to furniture surfaces. Vacuum the mouse pad at least once a week.

2. Once a week:

a. Remove the mouse ball and wipe it off with a clean, soft cloth.

b. Unscrew the top plate, exposing the inside of the mouse.

c. Using cotton swabs and a light solution of isopropyl alcohol, clean the deposits on the thick surfaces of the sensor wheels—the three surfaces that come in direct contact with the mouse ball—to assure smooth and even wear of the mouse ball. You may need a small, plastic-tipped tool to scrape away the deposits if the cotton swabs don't work.

d. Gently blow out any dust that may have settled into the cavity. Replace the top and secure the screws.

Since the article Maverick Atari School *appeared in the October, 1987 issue of **Antic**, Patrick McShane's PCS School of Advanced Learning in Nampa, Idaho has grown from 85 to 152 students. This summer, for the first time, PCS hosts students from other parts of the U.S. in a National Summer Camp, August 8-19. Cost for the session is only $100, because visiting campers will stay with PCS student families. In addition to the daily classes a raft trip down the "River of No Return" is planned.*—ANTIC ED ■

ST New Products

continued from page 51

VROOM VROOM

Zoom from Florida to California in your Mercedes 560 SEC—or one of three other **Crazy Cars**: a Porsche 911 Turbo, a Lamborghini Countach 500 S and a Ferrari GTO. Crazy Cars features 72 skill levels and 3-D action as you do your best to beat not only the clock but every other car you see.

$39.95. Titus Software Corp., 20432 Corisco Street, Chatsworth, CA 91311. (818) 709-3692.

FOUNDATION'S WASTE

Escape a hostile planet in a stolen spaceship and defeat your captors in **Foundation's Waste**, Scorpion's new arcade game featuring colorful graphics and the planet's scrolling background.

$39.95. Scorpion, 19 Harbor Drive, Lake Hopatcong, NJ 07849. (201) 663-0202.

MINI-LEDGER

Rascom's GEM-oriented **Mini-Ledger** for small businesses features an integrated expense sheet, income sheet and final profit/loss summary sheet to document your activities. Control the data with search, sort and update functions. Other features include built-in help screens, an integrated spreadsheet and report capability.

$30. Rascom, 22128 Newkirk Ave., Carson, CA 90745.

ST VIDEOS

Video SIG has produced three instructional video tapes for the Atari ST: "Dr. T's Music Software," "MidiSoft Studio" and "The Amazing Atari ST." The first two demonstrate and explain those ST music packages, and the third gives an overview of the ST and explains various software packages that can be used with it.

$14.99 ($39 for all three). Video Software Interest Group, 1030 E. Duane Avenue, Suite C, Sunnyvale, CA 94086. (408) 730-9291.

M

M is an interactive composing and performing system that lets you specify basic musical material as notes and chords, then determine ways to transform that basic material and perform the music via screen controls and a MIDI keyboard. You can also "conduct" with the mouse in a multidirectional grid.

$200. Intelligent Computer Music Systems, P.O. Box 8748, Albany, NY 12208. (518) 434-4110.

*New ST product notices are compiled from information provided by the products' manufacturers. **Antic** assumes no responsibility for the accuracy of these notices or the performance of the product.*

Hard-Disk Backups

Weighing the advantages of contrasting styles

Reviewed By MARTIN BROWN

When I purchased an Atari 20Mb hard disk for my ST, my reasons for buying were *not* to obtain massive storage, but to gain fast access to my different programs and to speed up saves and retrieves of files. However, I soon realized that the best thing about a hard drive is never having to read "Disk Full" again.

But along with the large storage comes the necessity of backing up all that data. Failing to do so is foolish.

So now every morning I immediately copy my most important work files onto floppies and I use a different floppy for each work day. If I really foul up, I have at least four successively older backups. While copying a few critical daily-use files is easily accomplished using a "point-click-and drag" technique, faster methods are available for copying entire partitions of hard disk drives.

As the ST software marketplace matured, tools available for the Mac and IBM made their way into our arena—including software that considerably speeds up the backup process from a hard disk drive to a floppy, catalogs your backups more accurately, and selectively backs up changed files but skips files you haven't touched since the last backup.

Among the most noteworthy of these ST hard disk backup utilities are Beckemeyer's **Hard Disk Toolkit** and **Backup!** by MichTron. Interestingly, these two products take quite different approaches to the backup process, so they both have comparative advantages and disadvantages.

HARD DISK TOOLKIT

Beckemeyer's Hard Disk Toolkit is amazingly fast, copying about 1Mb per minute. Operation is also much easier than the documentation would have you believe. You can designate the partition to back up, decide whether you want automatic formatting of the floppies and away you go.

The program scans the drive partition being copied, tells you how many floppies are required and then backs up that partition at your command. At the end of the process, Toolkit marks each file on your hard disk partition that was copied so that next time you can simply back up changed files. Sound simple? It is. Even if you put an unformatted disk in the drive during the backup, Hard Disk Toolkit will recognize the problem and automatically format it.

However, Toolkit is not without problems. First, illegal file names that non-GEM programs can use stopped my first backup cold. I used file names starting with non-alphabetic characters, which Beckemeyer apparently never thought would happen. Toolkit simply locked up—and only after three reboots did I determine that the file name was the culprit.

Second, Toolkit's manual is a relic from other days—its style reminds me of a fire insurance policy I once canceled. The Beckemeyer seven-page manual, if followed step by step, does not explain the options very well at all. Toolkit's Update, which allegedly lets you copy only certain directories, simply does not work for me, even if I follow the sparse directions as closely as possible.

More serious a flaw is the method Toolkit uses to copy data. A floppy disk used by Toolkit is not readable by GEM. The information is packed onto the disk in a way that can't be read by your system without restoring the entire partition.

One of the options in the backup process is "verify," which allows you to turn off the write-verify process. The manual indicates this speeds up the backup slightly, but at the sacrifice of some reliability. I could live with a minor sacrifice here, but I discovered that the chain is only as good as its Toolkit's weakest link. I once found it necessary to restore the partition of my hard drive with all my word processing files.

Knowing that what I was doing was serious, I backed up right before formatting that partition. My default method for backup was without write verify, and unknown to me, the next-to-last floppy disk had a bad sector. Toolkit gave no warning—I had verify turned off. When I went to restore, the first six disks seemed fine, but number seven gave me a "bad disk—re-enter" message. Nothing worked, and consequently Toolkit couldn't restore *any* of my files, not even those on the six good disks.

Toolkit's restore procedure calls for the floppies to be loaded in the proper order, making it hard to scramble files by restoring them in an incorrect order. This prevented my completing the restore with a bad disk. Without disk number seven, Toolkit refused to budge—no quitting and salvaging the first six disks, then rebooting and trying again. And since the floppies are not readable from the GEM desktop, I had nothing left to use.

So, when I really needed this program to help, its strengths became its major weakness. I suggest that if you want to use Hard Disk Toolikit—don't turn off write-verify and don't settle for less than the best floppies you can afford.

$29.95. Beckemeyer Development Tools, 478 Santa Clara Avenue, Oakland, CA 94610. (415) 452-1129.

CIRCLE **259** ON READER SERVICE CARD

continued on page 57

Power Add-Ons for GFA BASIC

3-D graphics plus a treasury of turbo routines

GFA BASIC BOOK

GFA BASIC is one of the most widely used languages for the ST, particularly by hobbyist programmers. This inexpensive ($79.95) language is **Antic's** first-choice BASIC for ST program listings. It provides a full-featured, structured programming environment with excellent GEM support and execution speed. Several add-on programs have been released in the series including a compiler and support for vector graphics. The only real shortcoming has been a lack of information besides the terse users manual.

Now the **GFA BASIC Book** ($39.95) goes a long way to fill this void, with a 306-page collection of tips and sample programs. It comes with a single-sided disk containing the samples described in the book. Author Frank Ostrowski certainly has the necessary credentials, since he wrote GFA BASIC in the first place.

The book is intended for mid-level programmers—those who know standard BASIC and want to learn how to use the advanced features of GFA BASIC. Although beginning programmers will find the book useful, particularly for graphics and sorting, the main thrust of the book is how to make use of system calls to GEM and GEMDOS functions. These discussions assume some preliminary knowledge on the reader's part and will need to be supplemented by more elementary ST reference books such as those in the Abacus series.

Topics include code optimization for speed, graphics and sound, accessing disk files, recursive programming and dealing with .RSC files. All are written clearly with numerous code examples. Missing from the book is a discussion on effective use of blocks for structured programming—which can be a problem for those used to "spaghetti-code" BASIC implementations.

Sample programs on the disk include routines for using the sound chip, creating dialogue boxes, accessing disk directories, screen flipping and scrolling, loading screen fonts, sorting and including assembly code within a GFA BASIC program. Another set of programs deals with GEM and GEMDOS applications such as creating multiple windows, building slider boxes, making icons and dealing with the resource construction set.—JIM PIERSON-PERRY

GFA VECTOR

If you've played games like ST-Wars, Star Glider or R.P.V., you know how exciting 3-D graphics can be. However, 3-D graphics require powerful computer processors and large amounts of memory to display them. To create a 3-D application requires extensive knowledge in programming (usually a high-level compiled language or Assembly) and strong math skills. Until now, the only feasible hardware solution was a mainframe system. But with the introduction of the 16-bit personal computer, 3-D graphics are now possible. However, the software required to display and manipulate the 3-D objects is still complex.

GFA Systemtechnik, makers of GFA BASIC, the most powerful BASIC for the Atari ST, have done it again. **GFA Vector** ($49.95) is a utility package that creates and manipulates 3-D graphics.

The GFA Vector package comes with a 43-page manual and a disk containing the utilities. The manual takes users step-by-step from object creation to using the finished objects in their own GFA BASIC programs. The manual explains how to create 3-D objects in two ways, with numerical input or the graphics editor. Numerical input consists of entering the x, y and z locations of every point of the object and the connecting lines between those points. The graphics editor lets the user draw the top, side and front views of the objects, making sure that selected points match in at least two of the three windows. I found it easier to break out the pencil and graph paper, design my objects and enter them numerically.

After objects are created, they can be manipulated in the user's GFA BASIC programs. Four files make up a GFA Vector application. The module file contains the actual 3-D routines called in the program. The disk contains a series of module files not clearly explained by the manual.

Second file is your GFA BASIC program or GFA Runtime program. If you plan on giving your application to others, make sure you use the runtime program. The users file must be merged with the install.lst file on the GFA Vector disk. The install.lst file contains the major call routines that the user will be activating. The final program is the object file containing

the created 3-D objects. Double-clicking on the module program will start the application.

Watching a 3-D application written in BASIC can be a painful experience. But the GFA Vector program updates complex 3-D objects in a smooth, real-time fashion. Only when the zoom factor is high and the object very large does the display slow down. I created a program that flew through the 3-D environment. By increasing the Zoom increment rate I achieved speeds close to Star Glider. Not bad for a BASIC program.

Manipulating objects is straightforward. The user only needs to call a particular array with the proper variables and the object or objects are updated. For example, Scale%(1)=32 would set the size of object 1 to 32. A For/Next loop could be used to make the object move closer or farther away from the user's perspective. Some other possible calls are object selection, object color, object position and object rotation. In addition the user can draw the objects in or mode or xor mode, send picture data to alternate screen pages and then switch the data in those screen pages.

The GFA vector package is a great addition to any GFA BASIC programmer's library. It is also a must for anyone who is interested in 3-D graphics. My complaints are few, GFA Vector objects can be displayed in wire-frame mode only, I would have liked the ability to create solid objects, even if the refresh rate is slow.

An object can be rotated around an axis center. However, rotation around an arbitrary point is not available. The ability to create my own call functions would be nice. And finally, an additonal utility should be included to convert the four support files into one file and/or compile the .bas file and remove the need for the runtime program altogether. All in all, GFA Vector is great. If you enjoy playing Flight Simulator, then pick up GFA BASIC and GFA Vector and make your own 3-D simulation.—SCOT TUMLIN ■

MichTron, 576 South Telegraph, Pontiac, MI 48053. (313) 334-5700.

CIRCLE **257** ON READER SERVICE CARD

HARD DISK BACKUPS
continued from page 55

BACKUP!

Backup! is almost the opposite of the Hard Disk Toolkit in its advantages and drawbacks. Where Hard Disk Toolkit is super fast, Backup! is painfully slow. Toolkit backs up a partition with about 1Mb of storage in about 90 seconds. Backup! takes just over six minutes, but uses the most secure of the several backup approaches. Where Toolkit produces floppies that are unusable from the desktop, Backup! lets you choose between that kind of file or standard GEM-readable files. Backup! has a better manual than Toolkit plus online help screens. However, the Backup! manual could still be improved. It's skimpy on details in a couple of places that new users of hard drives would appreciate, such as setting the path for backups to begin, or skipping system files in the backup process.

Backup! is full of options. You can choose to only copy certain paths within a hard drive partition, or to back up only changed files either by date or by actual file structure changes. Backup! helpfully creates a history file that keeps track of the files you have copied for use in subsequent incremental saves. But even this can be switched off if you want to maintain more than one set of backup floppies.

Accompanying this GEM program on the Backup! disk are SBackup and SRestore, which work under a shell environment. Their functions are identical to those under the GEM program, but they let you accomplish the same tasks in an auto-execute file using a shell program. These specialized programs may not be used by a large number of Backup! buyers, but Michtron's inclusion demonstrates the company's concern for ST users.

(As we went to press, MichTron was planning to sell Backup! in a new combination package with two other utilities, M-Cache—reviewed February 1988—and Tuneup!—ANTIC ED) ■

$59.95. MichTron Inc., 576 S. Telegraph, Pontiac, MI 48053. (314) 334-5700.

CIRCLE **260** ON READER SERVICE CARD

ST TOOLBOX

dBMan 4.0, OmniRes

DBMAN 4.0

Application programs that let you build independent applications are among the most powerful software around. On IBM PC compatibles, a prime example is Ashton-Tate's dBase III Plus, which enables you to create highly powerful standalone databases that can run without dBase. On the Atari ST, **dBMan** software is command compatible with dBase III Plus and reads dBase files directly. In fact, dBMan applications can easily be migrated to just about any major operating system, from Macintosh to Unix.

When **Antic** reviewed the first version of dBMan in the August 1986 issue, we already called it "an important dBase III workalike." But two years later, dBMan 4.0 is much smoother and delivers even more power.

The main power of dBMan is in its application language, which has many characteristics of a programming language, such as decision words (IF, FOR, CASE), loop structures (LOOP, DO, WHILE), procedures and advanced mathematical functions. However, it also includes special keywords for working with data and databases. You can CREATE databases, create and use REPORT FORMs, specify FIELDs, FIELDSPECs, FIELDTYPEs and FILEs, MODIFY STRUCTUREs of files, etc.

The dBMan interactive mode is a mostly blank screen where you can type almost any command. Commands are executed immediately, not unlike the immediate mode in a language like ST BASIC. Of course, some commands don't work properly from this mode.

You can also operate dBMan from the menu-driven Assist shell, which lets you get at some of the program's power without actually programming. You can create a database, enter data, sort and more in Assist mode—which is actually an application written in dBMan's application language.

The most powerful way to work with dBMan is to use the built-in text editor to create a script (program) using the commands and functions available in the application language. These scripts can be linked and even call one another to form a complete standalone application that's indistinguishable from a program written in C or assembly language. In fact, several standalone programs on the market today were written in dBMan's application language.

Commands include display or print data, change data from the keyboard, get data from the keyboard, manipulate a data file, sort the data, move the record pointer, plus the programming structure commands discussed above.

The specialized programming language provides tools and commands you don't see in a normal programming language, such as BROWSE, which provides all the records and fields in a table on the screen. Then you can scroll through the data and make changes that will be reflected in the data when you're done editing. You can also LOCATE or DELETE a record, SORT or INDEX a file, create a new file, APPEND records, and SET FILTER to look only at records which meet the given criteria. Other commands let you build a database interactively and design a report.

dBMan is a fully relational database. That is, by establishing the relationship between two files (a field which contains the same unique data in each file), you can get the contents of any fields in the other file by reference to the relation field in the first file. Let's say one of your files contains customer number, name, address and phone number and the other contains customer number and amount owed. Because both files contain the customer number, you can create a report that lists customer names, addresses and amounts owed, even though this data is in two different files.

There are a number of interesting differences between dBMan and the PC's dBase III Plus. dBMan's Assist mode is more oriented toward using it as a standard database, while dBase's Assist is better for building relational database structures. Also, dBMan doesn't let you design custom screen layouts, and you can't use CATALOG or SET VIEW to establish a set of files to load automatically.

On the other hand, dBMan includes commands for specifying drop-down menus and reading which menu item was selected in order to design applications that look like standard GEM programs on the ST. Also, dBMan doesn't suffer from the dBase III Plus limitation of only having a single relation for any given file—dbMan files can be related to several other files through one or more relational fields. Unfortunately, dBMan duplicates dBase's lack of arrays, making some operations quite difficult.

The dBMan manual is quite good. It includes a tutorial and large sections detailing the commands and functions, as well as quick reference cards for commands and functions. It's not well-organized—some sections that are too technical would have been easy to understand had they appeared later. The built-in text editor does not use the mouse and can handle only a limited amount of text. For larger dBMan programs, you may need to use a word processor and save the text as an ASCII file.

Overall, dBMan is a powerful tool for building applications, and is virtually the only such program for the

Atari ST. A runtime package is available, so users can run the final application without owning a copy of dBMan. Contact VersaSoft for information on licensing the runtime package. Now also shipping from the manufacturer is the Greased Lightning Compiler ($249.95), which is claimed to make make dBMan applications run four to 20 times faster.

Technical support by telephone costs $25 for six calls, which seems a little steep for a product of this complexity. But if you want to build and sell standalone applications that manipulate data on the Atari ST, you must give serious consideration to dBMan.—DAVID PLOTKIN

$249.95. VersaSoft, 4340 Almaden Expressway, Suite 250, San Jose, CA 95118. (408) 723-9044.

OMNIRES

If you own only the SC1224 monochrome monitor for your ST, you've undoubtedly found yourself locked out of tons of color-only software. And it's almost as bad the other way around. Well, you've got two choices—buy the monitor you don't have (expensive), or buy **OmniRes** software (not expensive at all) which lets you run monochrome-only programs on color monitors and vice versa.

Of course you won't get color images on a monochrome screen and you won't get true high-resolution detail on a color screen. OmniRes is really eight separate programs, allowing four different options for going in either direction. The different conversion options yield varying results.

There are also a couple of side effects. First, mouse movements and response rates slow down. Second, various program elements also slow down in different ways. For example, when I run SSI's President Elect on a real color monitor, a couple of bars of "Hail to the Chief" are played at the beginning, and the quick play option runs through the nine weeks of campaign screens faster than I can see. But with OmniRes and a monochrome monitor, "Hail to the Chief" sounds like a dirge and the flash through the campaign screens is slow enough for me to read.

With OmniRes installed, color-only software programs run with varying success. Heavily protected games may not run at all. Unless you copy the OmniRes program to Accolade's HardBall! program disk (which is *not* recommended), there's no way to run it in monochrome.

Putting monochrome-only software on a color screen works much better. There *isn't* much monochrome-only software around, but I tried the public domain JIL CAD program. When I ran it with Monoware, another public domain program that displays mono-only software on a color screen, it left a fuzzy, muddy impression. The OmniRes display was significantly clearer.

Should you buy OmniRes? Yes, if you own a monochrome monitor and want to run color-only programs such as unprotected games or database files created using dBMaster or BaseTwo. However, if you want to run a color-only game which has a protection scheme that makes the guys at Fort Knox look careless, you'll get unpredictable results. However, the package comes with a list of successfully converted software. And you could phone E. Arthur Brown for updates before you buy.—MARTIN BROWN ■

$34.95, E. Arthur Brown Company, 3404 Pawnee Drive, Alexandria, MN 56308. (612) 762-8847, (612) 763-6393.

Antic Classifieds

SOFTWARE, ETC.

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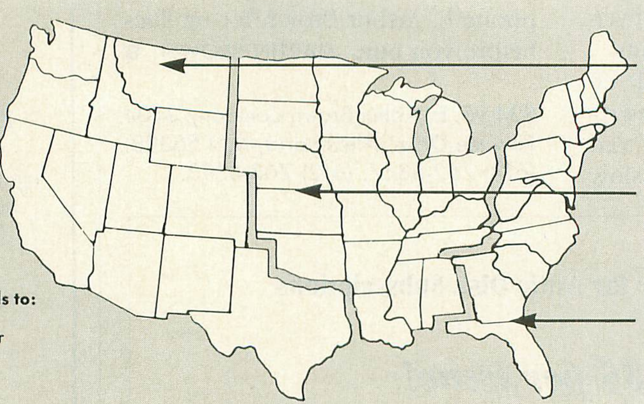
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Tech Tips

Antic pays $25 for every original and exclusive Tech Tip submission that we publish. Send your 8-bit or ST disk and printout to: Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. Tech Tips welcomes very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

WINDOW OPENER

This tip comes from *Antic* Technical and Online Editor Charles Jackson. Window Opener is a short, simple demonstration of a useful method for controlling text windows in BASIC. When RUN, the program draws an attractive moire pattern in Graphics 8. Afterwards, press [D] to bring up the text window *without* clearing your screen. Press [K] to remove the text window and restore the underlying graphic.

The trick is in the Graphics command. Add a 32 to the Graphics mode number to add a text window to your screen (see line 200). Add a 48 to the mode number to remove the window and restore your screen (see line 110).

Don't type the TYPO II Codes!

```
GC 10 REM TYPE A 'D' TO DISPLAY THE TEXT
   WINDOW
OO 20 REM TYPE A 'K' TO KILL IT
BT 30 GRAPHICS 8+16:POKE 710,0
YW 40 COLOR 1
OH 50 FOR X=0 TO 319 STEP 5:PLOT 0,0:DRAW
   TO X,191:NEXT X
IG 60 FOR X=191 TO 0 STEP -5:PLOT 0,0:DRA
   WTO 319,X:NEXT X
NP 70 FOR X=0 TO 319 STEP 13:PLOT 0,191:D
   RAWTO X,0:NEXT X
YO 80 FOR X=0 TO 191 STEP 13:PLOT 0,191:D
   RAWTO 319,X:NEXT X
VV 90 IF PEEK(764)=255 THEN 90
LJ 100 IF PEEK(764)=58 THEN GOSUB 200
MX 110 IF PEEK(764)=5 THEN POKE 559,0:GRA
   PHICS 8+48:POKE 710,0:POKE 559,34:POKE
    764,255
IG 120 FOR Y=1 TO 100:NEXT Y:GOTO 90
MB 200 POKE 559,0:GRAPHICS 8+32:POKE 710,
   0:POKE 752,1:? "▛ Type a 'K' to KILL t
   his window."
FC 210 POKE 559,34:POKE 764,255:RETURN
```

PARTIAL SCREEN CLEAR

Robby Chavers of Tampa, Florida, contributed this little program that lets you choose any point on a Graphics 0 screen and clear all the screen area below it, leaving the remainder intact.

This program fools BASIC into thinking that the screen position was moved down by changing the values in memory locations 88 and 89. To change the number of screen lines you *don't* want to clear, change the value of LINE in line 120 to any number up to 23.

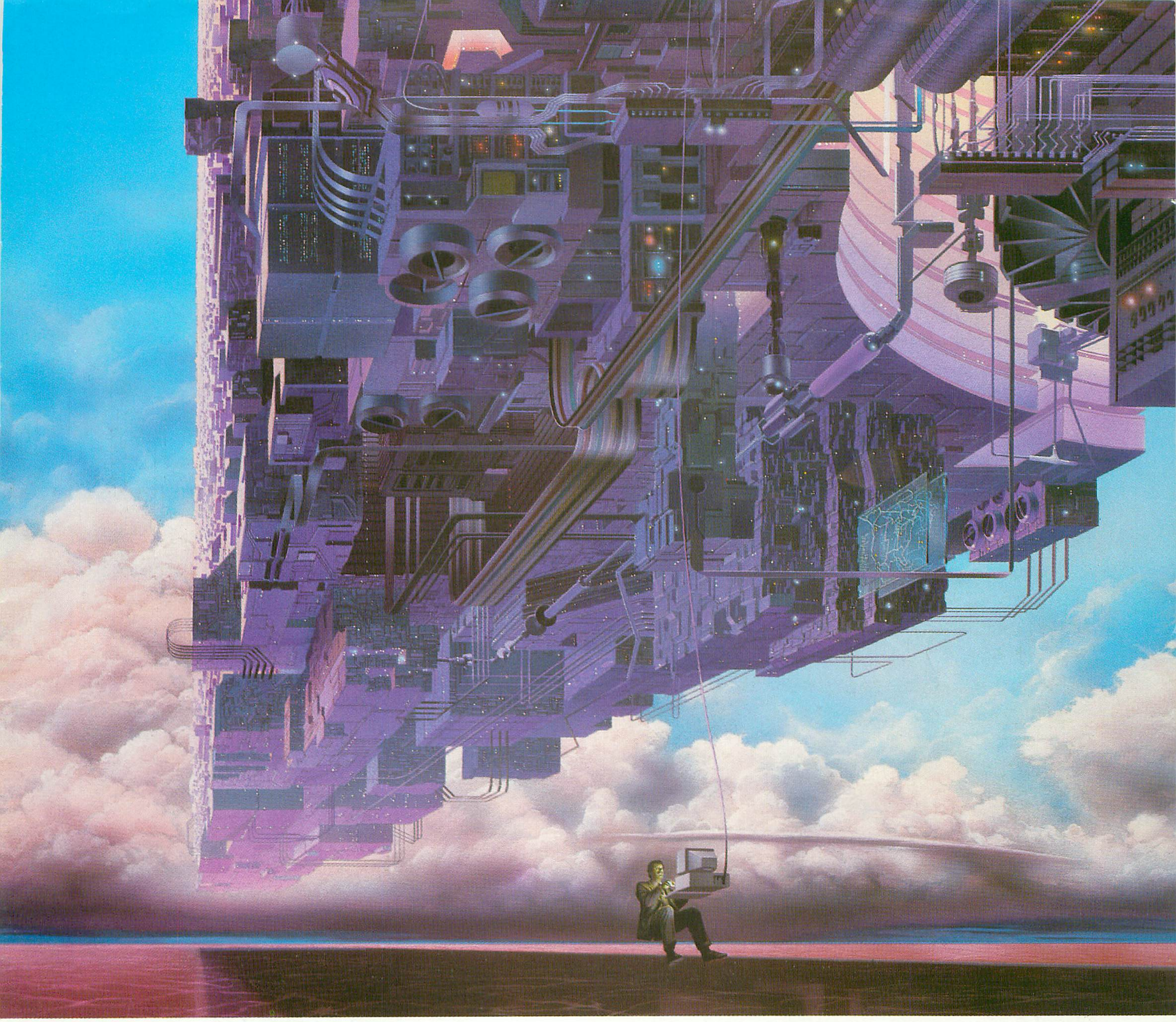
```
100 POKE 82,0:? CHR$(125);
110 FOR P=0 TO 340:? P;:NEXT P
120 LINE=18:GOSUB 1000
130 END
1000 C=PEEK(88):D=PEEK(89)
1005 ADD=C+D*256+LINE*40
1010 A=INT(ADD/256):B=ADD-A*256
1020 POKE 88,B:POKE 89,A:? CHR$(125)
1030 POKE 88,C:POKE 89,D
1040 POSITION 0,LINE:RETURN
```

FAST CURSOR XL/XE

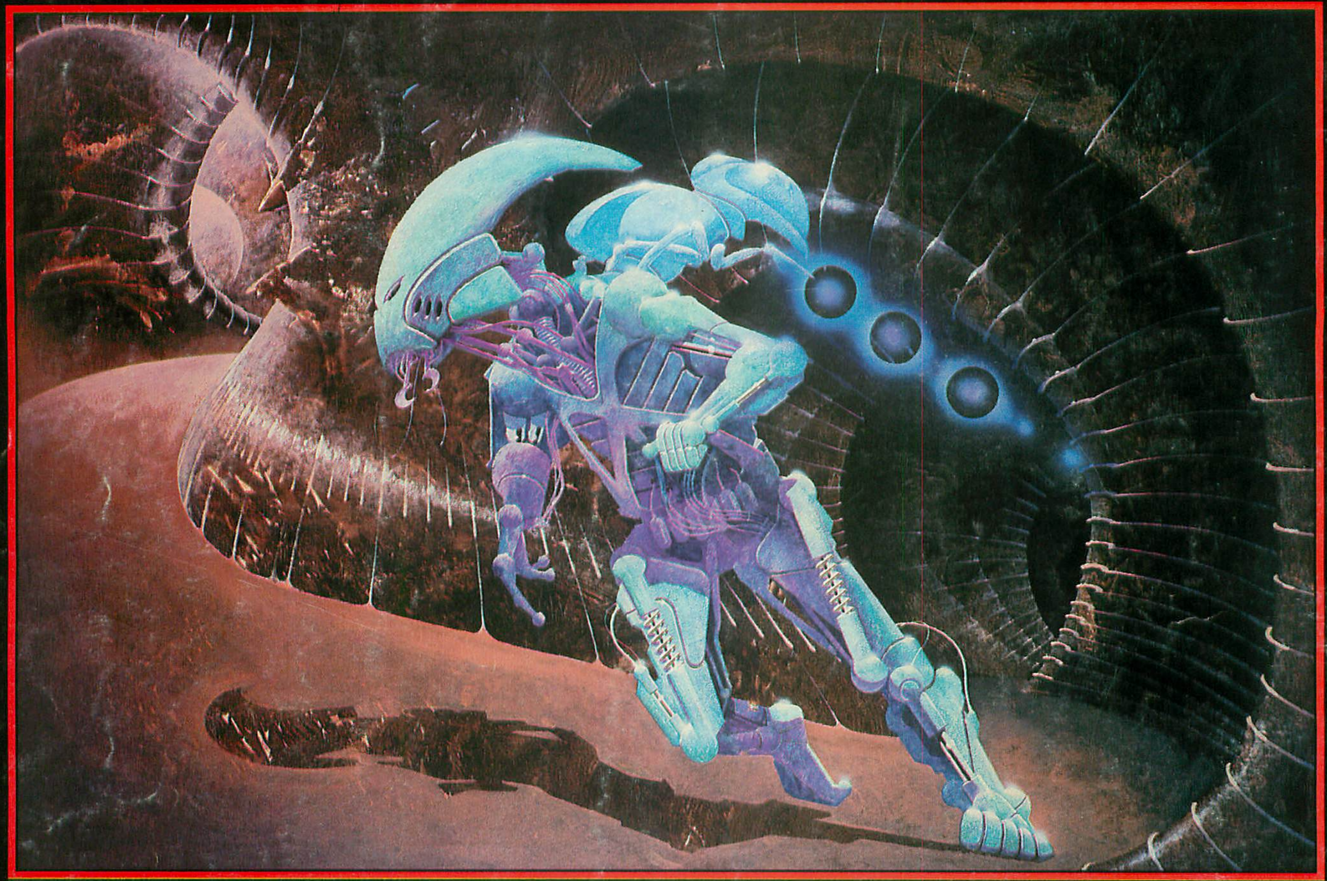
Fast Cursor comes from Trevor Maingot of Ventura, California. Cursor speed is controlled in memory location 730, which normally has a value of 6. This program stores a 2 in location 730, thus greatly increasing cursor speed. NOTE: Fast Cursor ***doesn't*** *work on the Atari 800 or 400 models.*

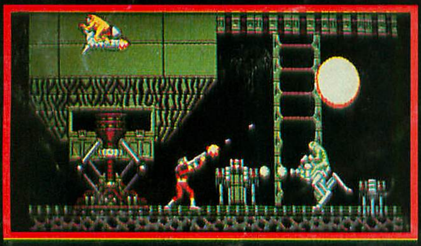
When you see the onscreen message saying that the Fast Cursor routine is installed, press [RESET] to activate it. Now the only way to get rid of Fast Cursor is to turn the computer off.

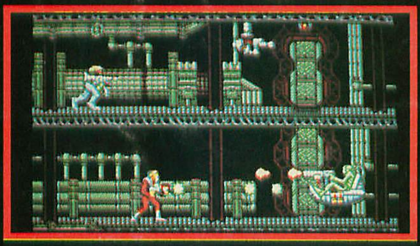
```
10 FOR I=260 TO 277:READ A:POKE I,A:NEXT I
12 ? "FAST CURSOR INSTALLED, PRESS RESET, THEN TYPE'NEW'AND
   GO ABOUT YOUR BUSINESS"
15 X=USR(260)
16 END
20 DATA 169,2,141,218,2,169,4,133,2,169,1,133,3,169,3,133,9,96
```



OBLITERATOR









OBLITERATOR

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